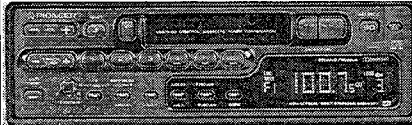


Service Manual

PIONEER
The Art of Entertainment

• KEH-M7300/EW



ORDER NO.
CRT1382

MULTI-CD CONTROL FM/MW/LW TUNER DECK AMPLIFIER

KEH-M7300

EW

KEH-M7300SDK

WG

MULTI-CD CONTROL FM/AM TUNER DECK AMPLIFIER

KEH-M7200

US

KEH-M7250

CA, ES

KEH-M550

US

Note:

- See the separate manual CX-197 (CRT1328) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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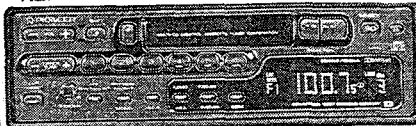
ES MAY 1991 Printed in Japan

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Service Manual

PIONEER
The Art of Entertainment

• KEH-M7300/EW



ORDER NO.
CRT1382

MULTI-CD CONTROL FM/MW/LW TUNER DECK AMPLIFIER

KEH-M7300

EW

KEH-M7300SDK

WG

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Service Manual

PIONEER
The Art of Entertainment

• KEH-M7300/EW



ORDER NO.
CRT1382

MULTI-CD CONTROL FM/MW/LW TUNER DECK AMPLIFIER

MULTI-CD CONTROL FM/AM TUNER DECK AMPLIFIER

KEH-M7200

US

Note:

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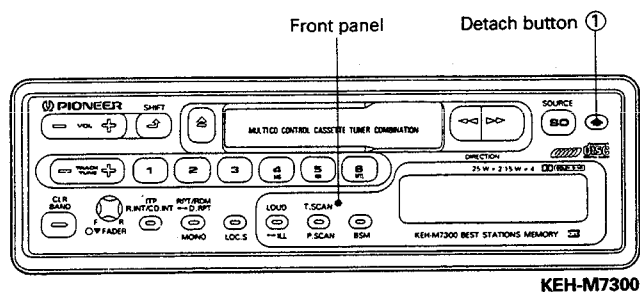
3026

1. USING THE REMOVABLE FRONT PANEL

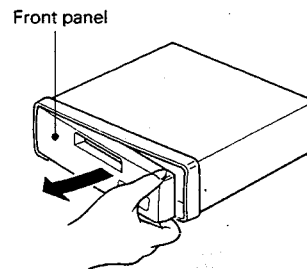
The front panel of this unit can be removed to prevent theft.

Detaching the Front Panel

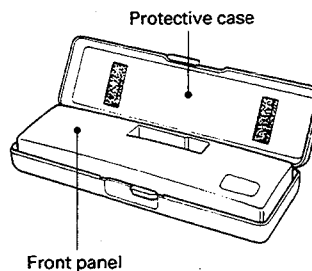
1. Press button ①, and the right-hand side of the panel will eject.



2. To remove the front panel, pull its right-hand side toward you.



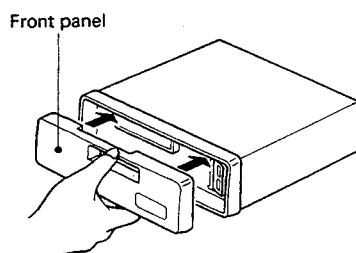
- Take care not to put pressure on the display or drop the front panel.
3. Enclose for safekeeping the front panel that is removed in the supplied protective case.



Replacing the Front Panel

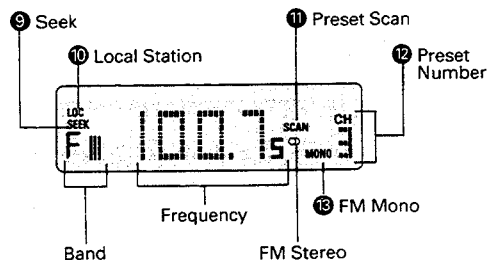
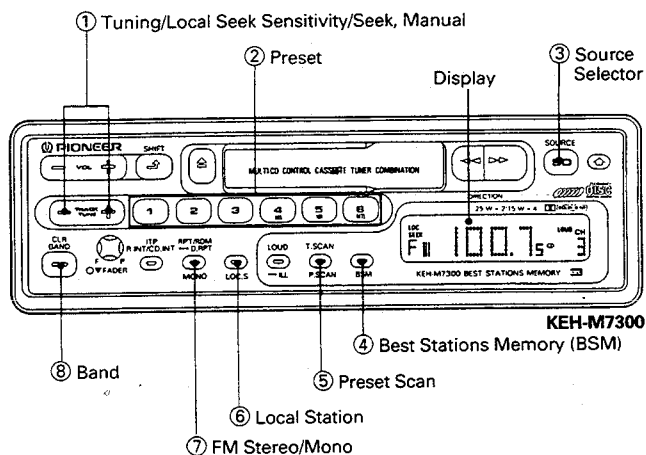
Push the front panel into the main body.

- When replacing the front panel, do not put pressure on the display or control buttons.



- Note that if the front panel is not attached correctly, pushing button ① may not release the panel, and the other control buttons may not function.

3. USING THE RADIO



① Press button ③ to switch the radio power on.

② Press button ⑧ to select a band.

F I → F II → F III → M/L
(FM1) (FM2) (FM3) (MW/LW)

Use Button ① to switch between MW (531–1,602 kHz) and LW (153–281 kHz).

③ Use seek tuning to tune in a frequency.

Confirm that the SEEK indicator ⑨ is shown on the display (if not, press the (+) and (–) sides of button ① at the same time). Press the (+) side of button ① to automatically tune in the next higher receivable frequency, and the (–) side for a lower frequency.

④ Adjust volume and tone

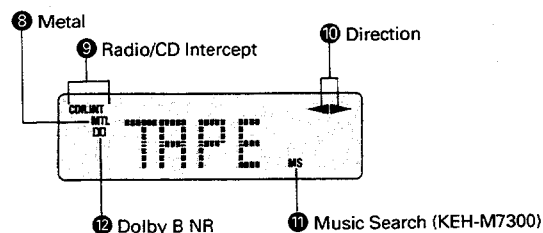
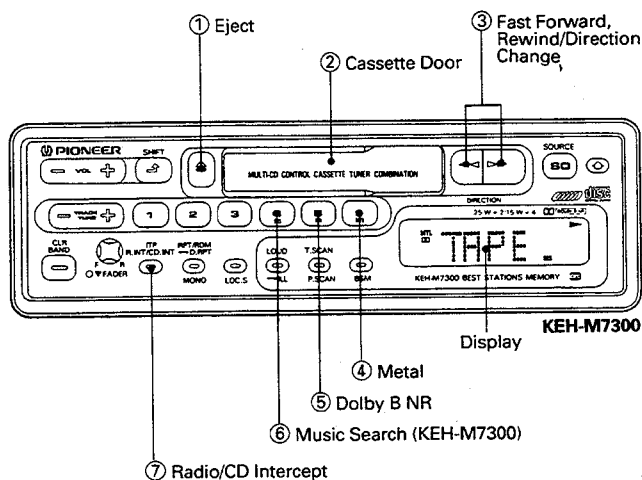
⑤ Assign the tuned frequency to one of the buttons in Bank ② (preset memory).

Press and hold down one of the button in Bank ② for at least two seconds. The frequency is assigned to the selected button when the preset number ⑫ stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and six MW/LW stations can be assigned to the preset memory buttons in Bank ②.

⑥ Once a frequency is assigned to a button in Bank ②, you just need to press that button to tune it in.

This also causes the number of the button pressed to appear at position ⑫ on the display.

4. USING THE TAPE DECK



① Insert the cassette tape into the slot ②, and power will be turned on and the tape begin being played back.

At this time, the tape running direction indicator ⑩ will light up.

② Adjust volume and tone

③ To eject the cassette tape, press the button ①.

- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.

- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.

Changing Program

Push the fast forward and rewind buttons ③ together to switch from one side of the tape to the other (from Side A to Side B or vice versa).

Using Fast Forward and Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons ③ can be regard as fast forward/rewind buttons.

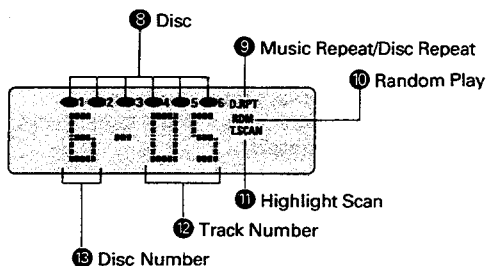
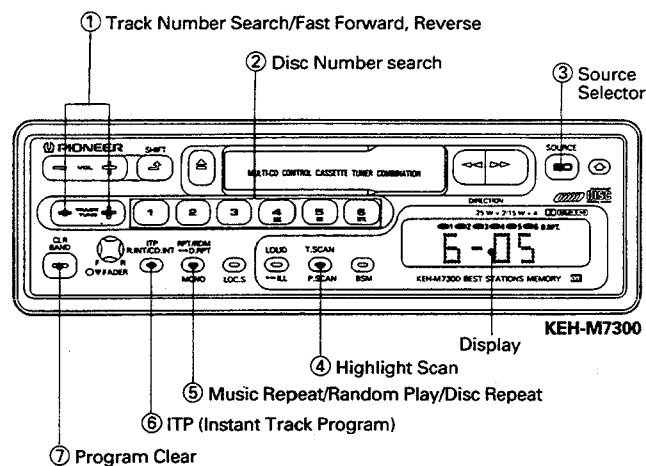
For fast forward, press the high-speed tape transport button ③ that corresponds to the direction that is shown by the direction indicator ⑩.

When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button ③ that is opposite that of the direction shown by the direction indicator ⑩. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button ③.

5. PLAYING COMPACT DISCS



1 Press button ③ to change the display to the Multi-Play CD player mode and to begin disc play.

Each press of button ③ changes the mode as follows:
Multi-Play CD player — Tape — tuner — OFF

2 Use the Disc Number Search function to select a disc.

Select the desired disc by pressing one of the buttons in Bank ②. The number of the disc selected appears at position ⑬ on the display.

- Display ⑧ indicates whether the magazine is loaded or empty.
- If the number at position ⑬ on the display does not change when you press a button in Bank ②, it means that there is no disc loaded in that tray.

3 Use Track Number search to select a track.

Confirm that Track Number is shown at Position ⑫ on the display.

If not, press the (+) and (-) sides of button ① at the same time. Press the (+) side of button ① to increase the number at Position ⑫, or the (-) side to decrease the number. Holding either side of button ① down changes the track number at high speed.

4 Adjust volume and tone

5 To stop disc play, press button ③.

At another press, the normal play resumes from about where it stopped.

- If you stopped operating a Multi-Play CD Player CDX-M100 in the middle of music and then restarted, the player resumes playing from the very beginning of the selection with which you stopped.

6. BLOCK DIAGRAM

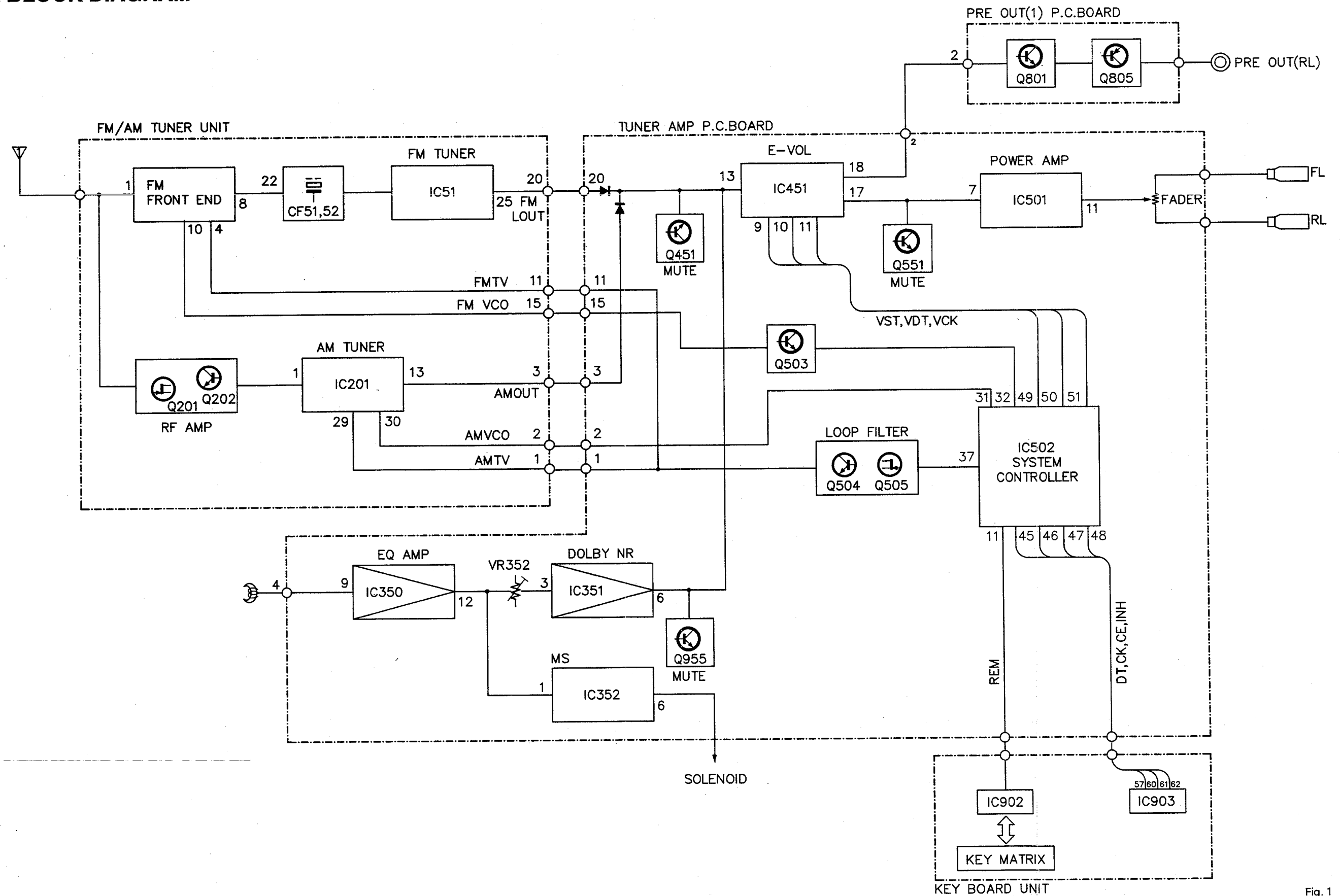


Fig. 1

7. DISASSEMBLY

• Removing the case

1. Insert and turn a screwdriver at locations indicated by arrows to remove the case.

• Removing the grille Assy

1. Press the detach button, and then pull grille Assy.

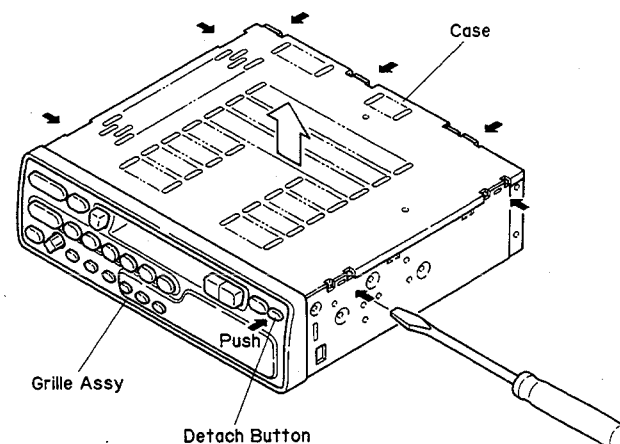


Fig. 2

• Removing the cassette mechanism Assy

1. Remove the four screws.
2. Disconnect the connector.
3. Remove the cassette mechanism Assy.

• Removing the panel Assy

1. Remove the two screws.
2. Disconnect the connector.
3. Remove the panel Assy.

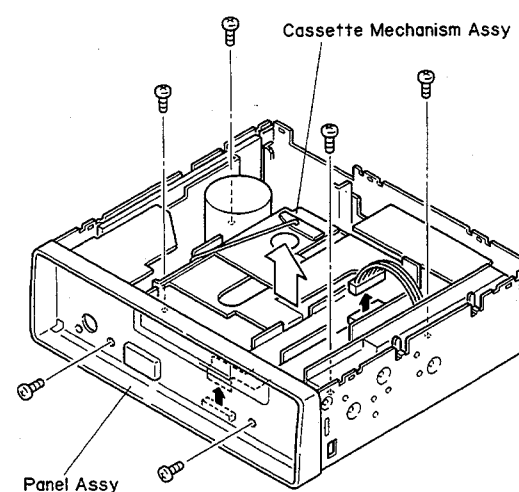


Fig. 3

• Removing the chassis unit

1. Remove the five screws.
2. Remove the antenna plug.
3. Remove the chassis unit.

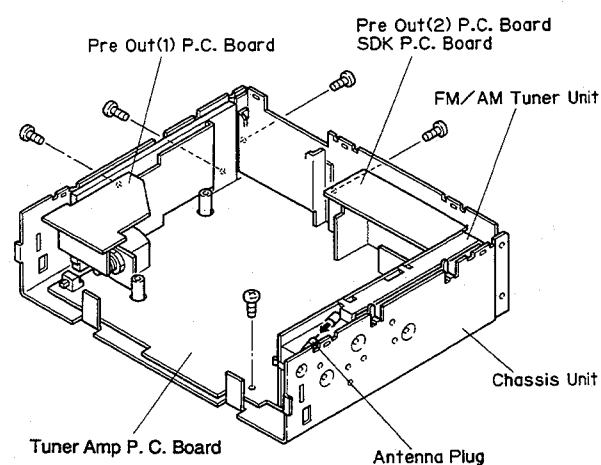


Fig. 4

8. ADJUSTMENT

8.1 TEST MODE

Test mode is mainly used in adjustment of CD multi-players.

• Switching to test mode

While pressing the 4,6 keys together, switch the back-up and the ACC ON.

• Canceling test mode

While pressing the CD multi-player clear button, switch the this unit back-up and ACC OFF.

• Key functions during test mode

The CD multi-player, deck, and tuner are selected by the SOURCE button.

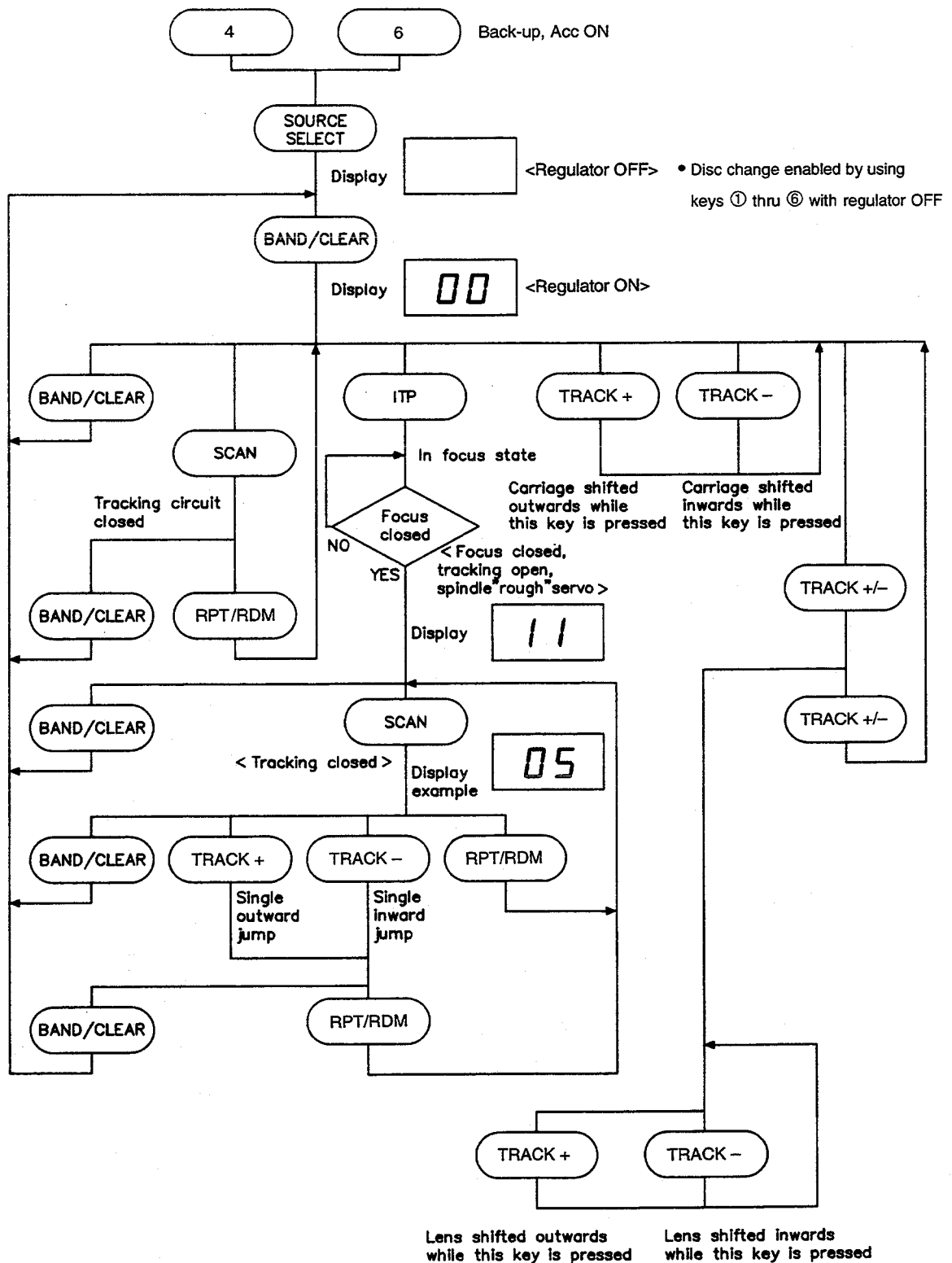
a) CD multi-player

key	Function
BAND/CLEAR	Regulator ON/OFF
TRACK +	FWD kick
TRACK -	REV kick
SCAN	Tracking close
RPT/RDM	Tracking open
ITP	Focus close
TRACK +/-	Carriage/tracking switching

b) Deck and tuner

No corresponding function. Normal operation executed.

•Flow Chart



8.2 TUNER ADJUSTMENT

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

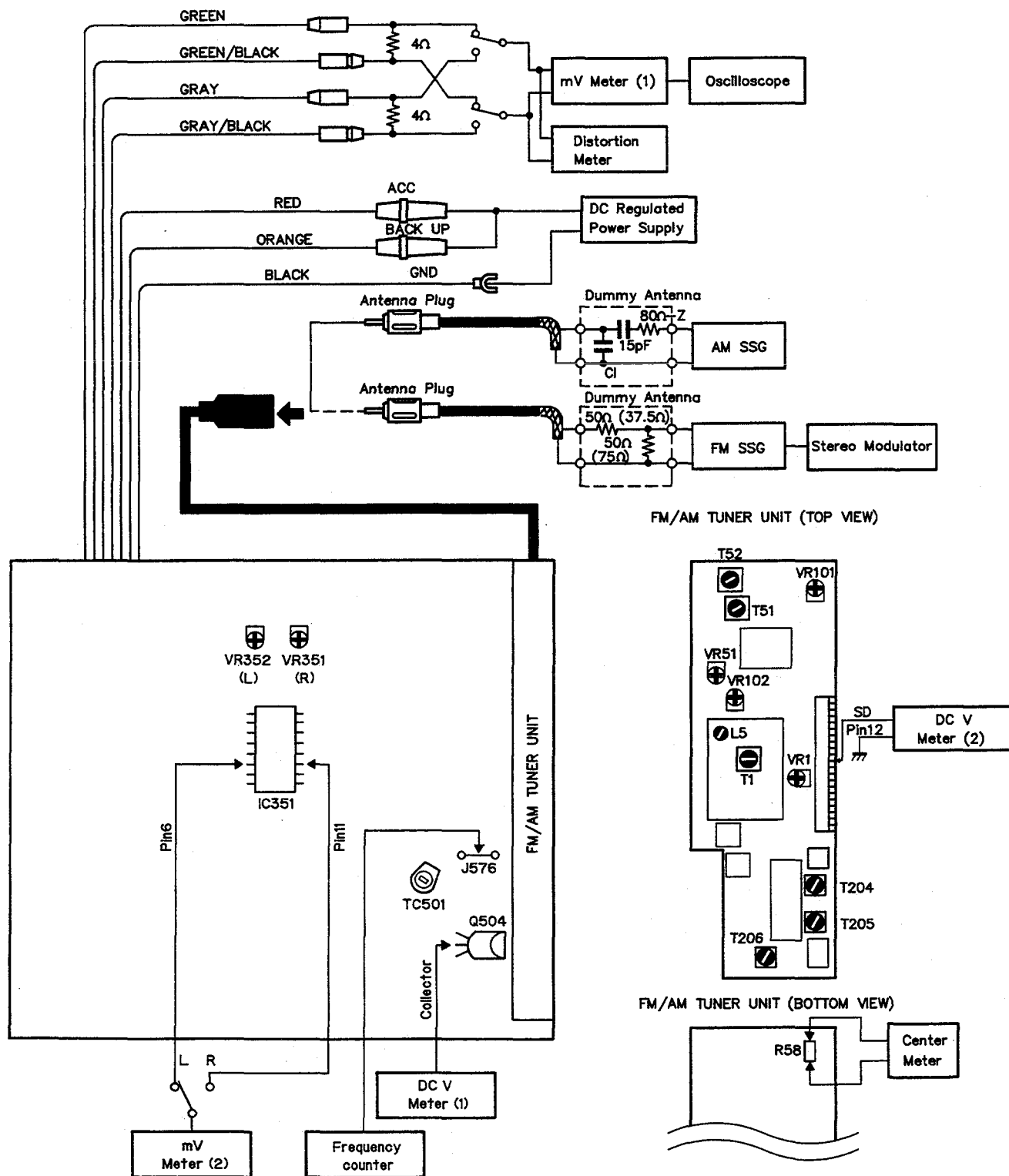


Fig. 5

FM ADJUSTMENT ※ Stereo MOD.: 1kHz, L+R=90% . Pilot=10%
 *(): EW, WG, ES Model

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBμV)			
IF	1	98.1	60	98.1	T51	Center Meter:0
	2	98.1	60	98.1	T52	Distortion Meter:Minimum
	3	Repeat No. 1-2 alternately so that the center meter indicates the 0 output and distortion meter indicates minimum output.				
Front End	1			107.9 *(108)	L5	DC V Meter (1): $6.2 \pm 0.2V$
	2			87.9 *(87.5)		Verify that DCV Meter (1) is more than $2.1 \pm 0.6V$
	3	98.1	8	98.1	T1	Oscilloscope:Optimum Symmetry
	4	98.1※	60	98.1	T1	Distortion Meter:Minimum Rotate T1 less than $\pm 90^\circ$
Soft Mute	1	98.1	60	98.1		mV Meter (1):A dB
	2	98.1	9	98.1	VR102	mV Meter (1):A-3dB
ARC	1	98.1※	34	98.1	VR101	mV Meter (1):Separation 5dB
SD	1	98.1	15	98.1	VR51	DC V Meter (2):Approx. 5V
	2	98.1	14	98.1		Verify that DC V Meter (2) is approx. 0V.
	3	98.1	55	98.1	VR1	DC V Meter (2):Approx. 5V
		Connect collector of Q2 to GND. Connect DC regulated power supply to pin 3 of FM front end through resistor (330Ω). Add 4.3v from DC regulated power supply.				
	4	98.1	54	98.1		Verify that DC V Meter (2) is approx. 0V.

AM ADJUSTMENT (US, CA, ES model)

* () : ES model when tuning step at 9kHz.

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1			1,710 *(1,602)	—	Verify that DC V Meter (1) is less than 6.5V.
	2			530 *(531)	—	Verify that DC V Meter (1) is more than 2.0V.
IF	1	1,000 (999)	15	1,000 (999)	T204, 205. 206	mV Meter (1) : Maximum

MW/LW ADJUSTMENT (EW, WG model)

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	(MW MODE)		1,602	—	Verify that DC V Meter (1) is less than 6.5V.
	2	(LW MODE)		153	—	Verify that DC V Meter (1) is more than 2.0V.
IF	1	999	20—25	999	T204, 205. 206	mV Meter (1) : Maximum

DOLBY NR ADJUSTMENT

No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz, 200nwb/m)	VR352 (Lch) VR351 (Rch)	mV Meter (2) : -6dBs ± 1dB (DOLBY NR Switch: OFF)

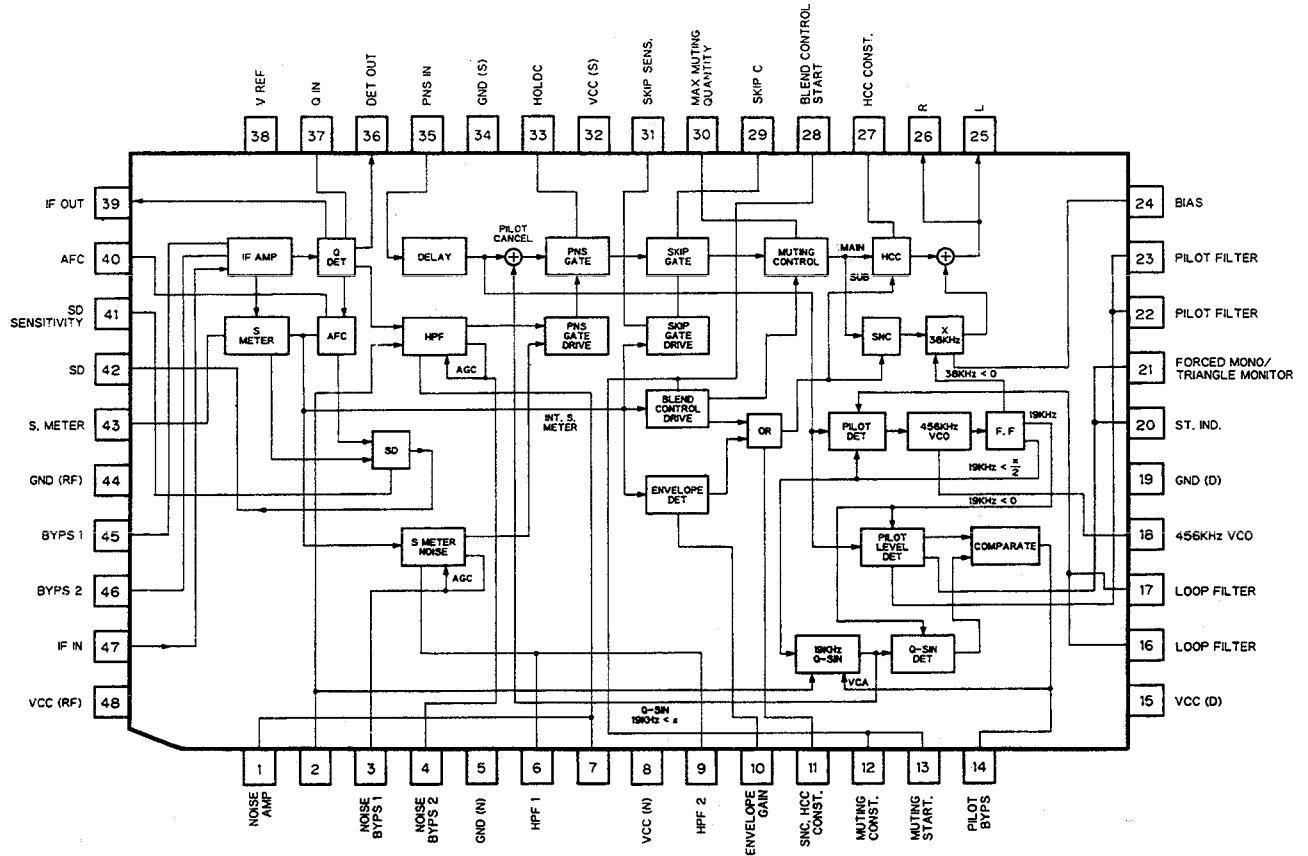
CLOCK ADJUSTMENT (US, CA, ES model)

ES model when tuning step at 9kHz.

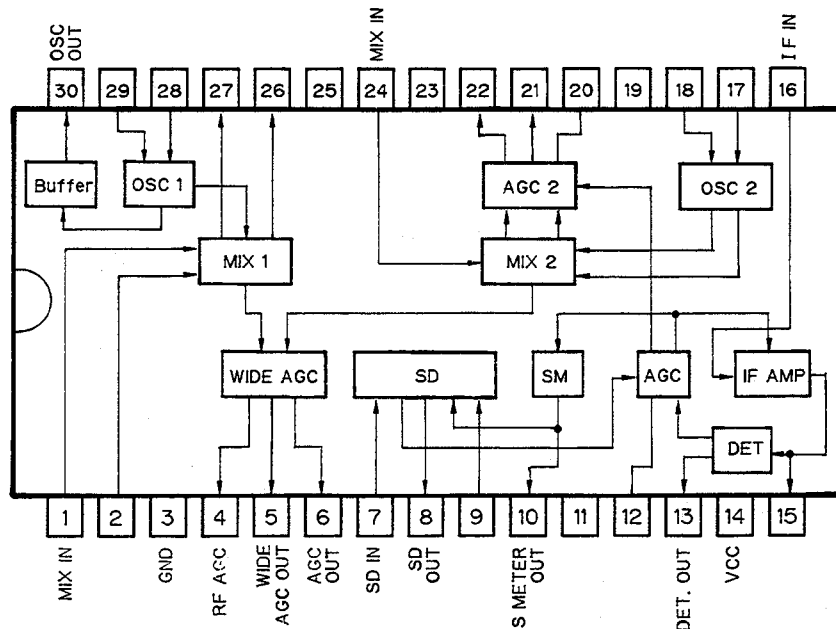
No.	Adjusting Point	Adjustment Method
1	AM Tuner Mode	Display: US, CA model 1,710kHz Display: ES model 1,602kHz
2	TC501	Frequency Counter: US, CA model 12,420kHz ± 50Hz Frequency Counter: ES model 12,312kHz ± 50Hz

•ICs

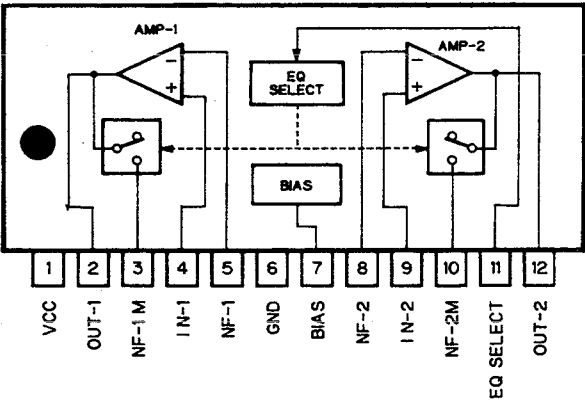
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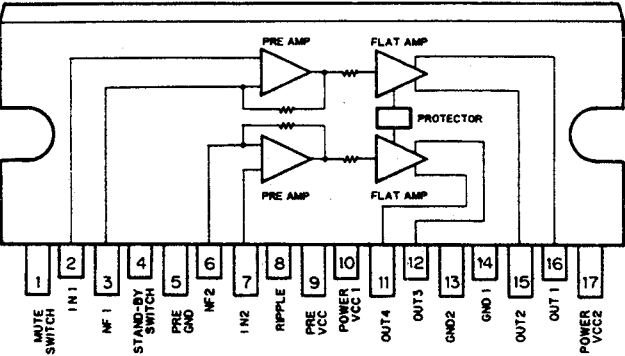
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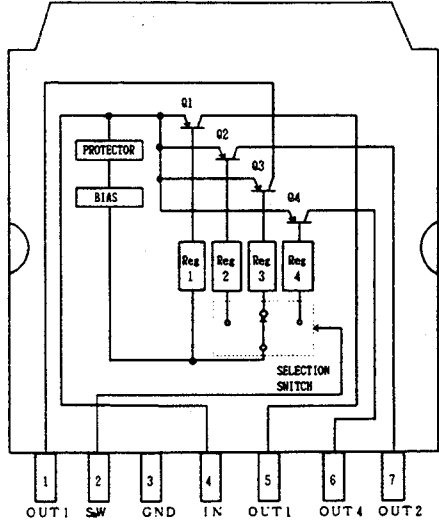
TA8162SN



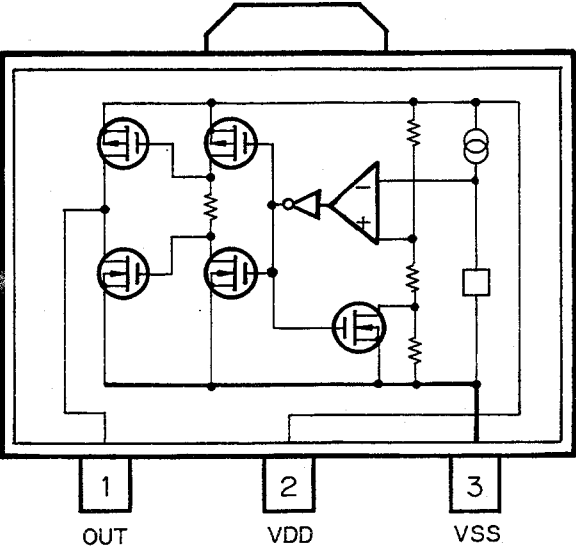
TA8215H-A



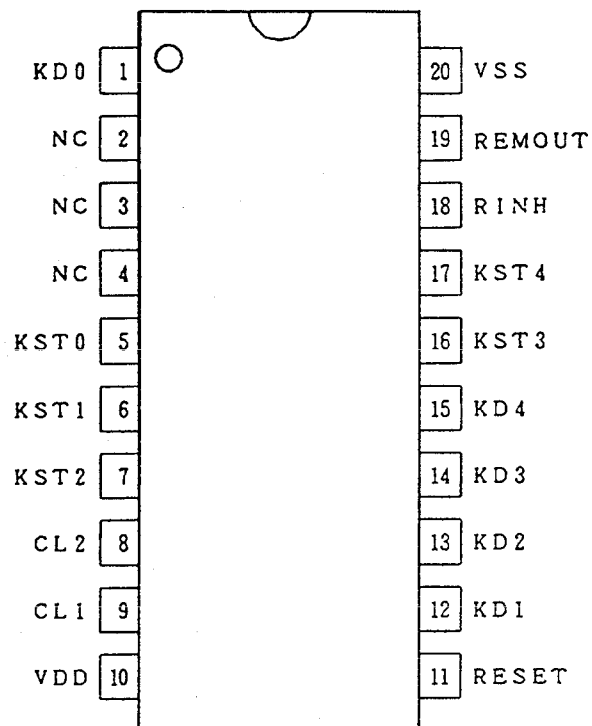
TA8214K



S-80740AH



PD4285



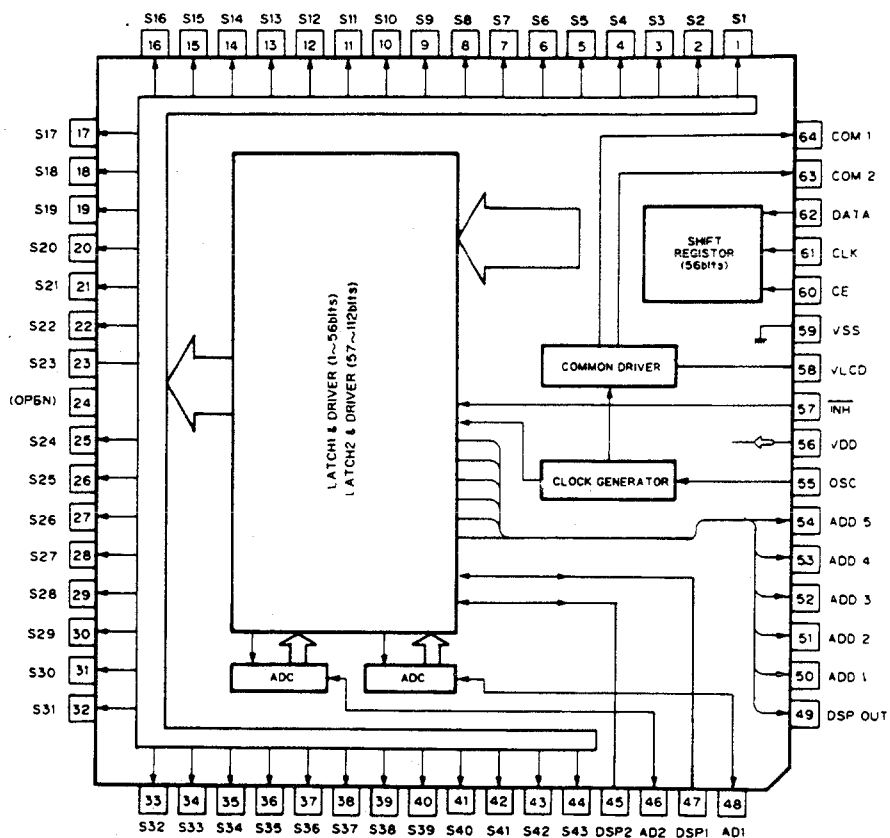
•Pin Functions (PD4285)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	KDD	INPUT		Key return input
2-4	NC			
5-7	KST0-KST2	OUTPUT	NM	Key strobe output
8	CL2			System clock generator connector pin
9	CL1			System clock generator connector pin
10	VDD			
11	RESET	INPUT		Reset input
12-15	KD1-KD4	INPUT		Key return input
16, 17	KST3, KST4	OUTPUT	NM	Key strobe output
18	RINH	OUTPUT	NM	Remote controller OFF output when key data is outputed
19	REMOUT	OUTPUT	NM	Remote controller data output
20	VSS			GND

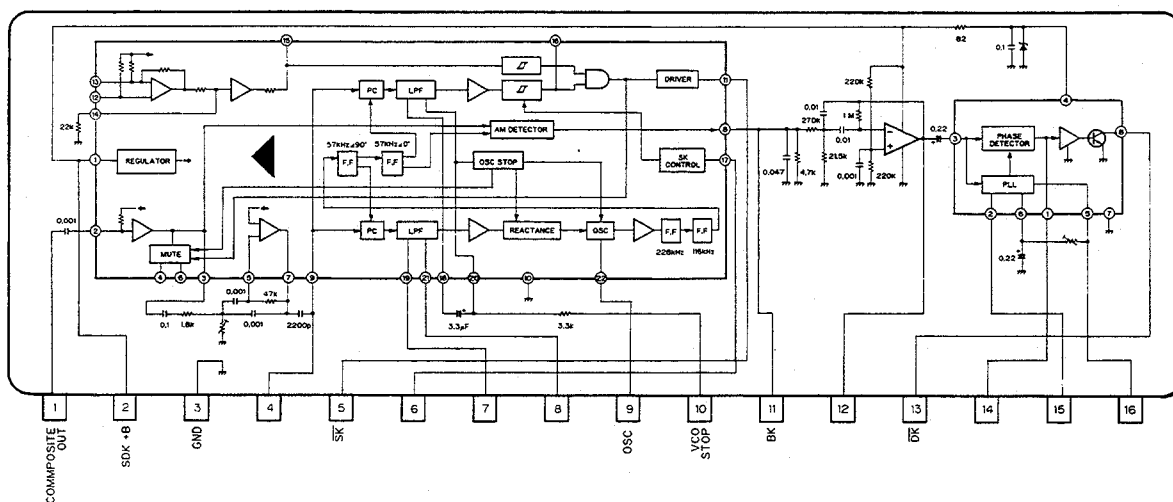
Output Format	Meaning
NM	Neutral resistivity N channel open drain

* LC7582A

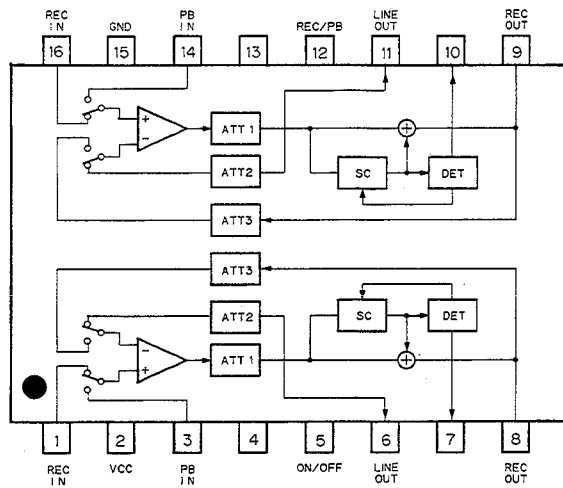
*IC's marked by * are MOS type.
Be careful in handling them because they are very
liable to be damaged by electrostatic induction.*



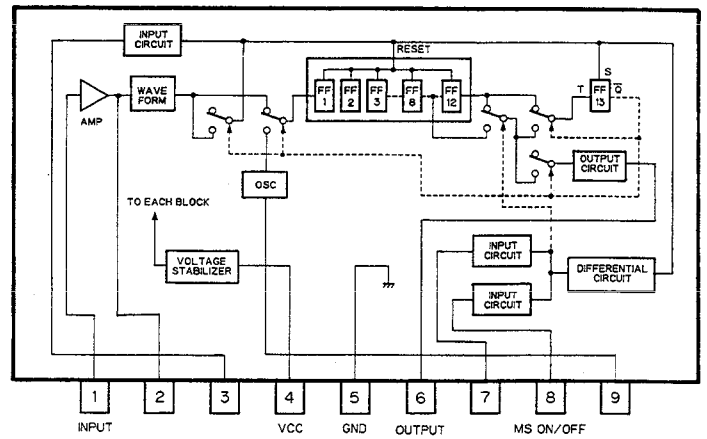
KHAC02



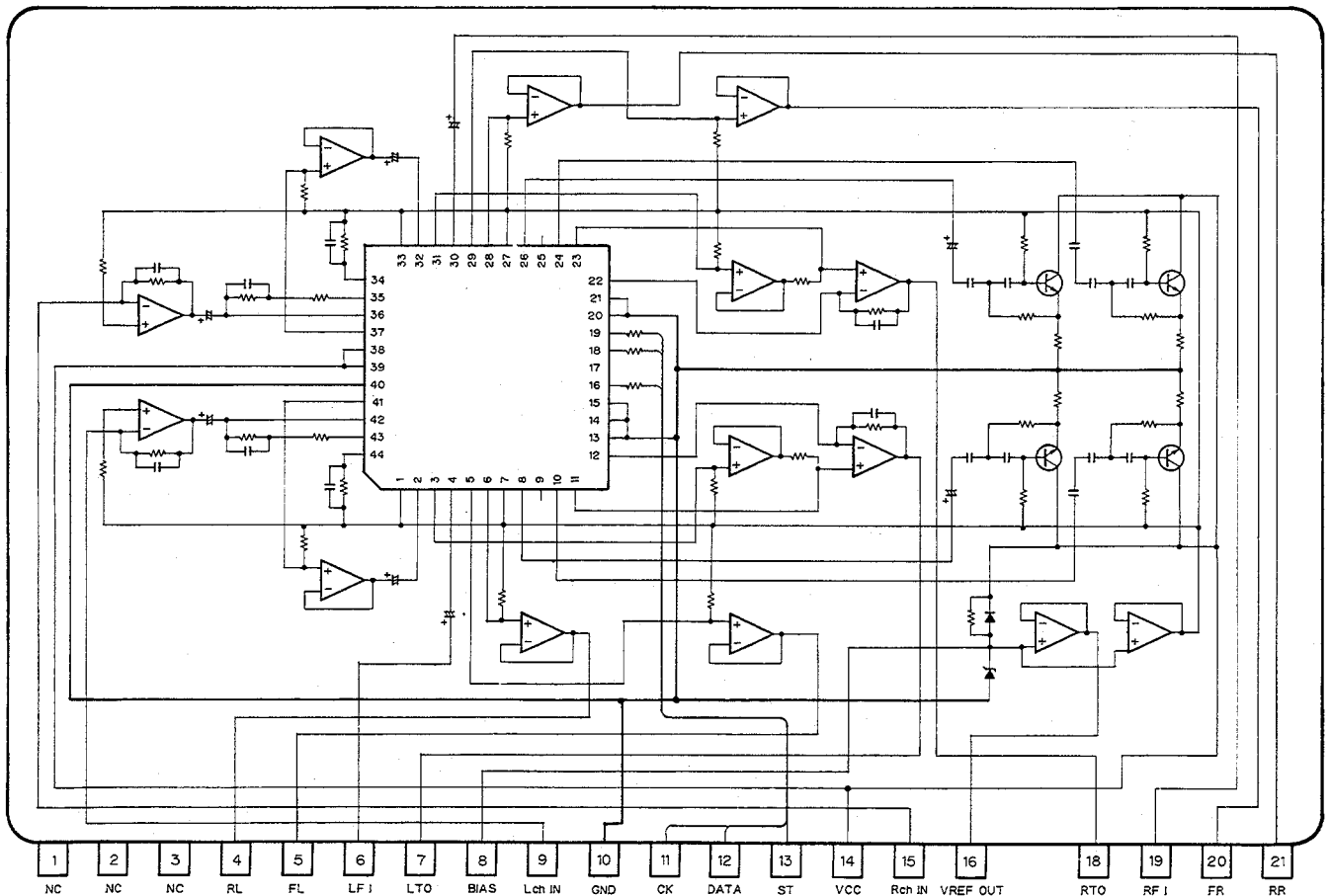
CXA1102P



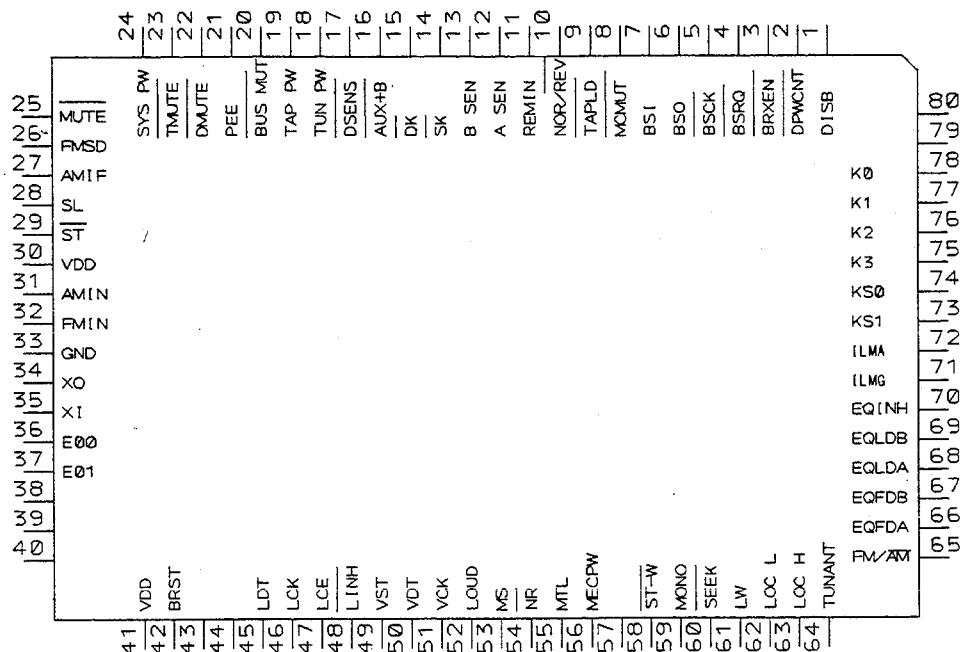
AN6263N



KHA272



*PD4302
PD4343A



•Pin Functions (PD4302, PD4343A)

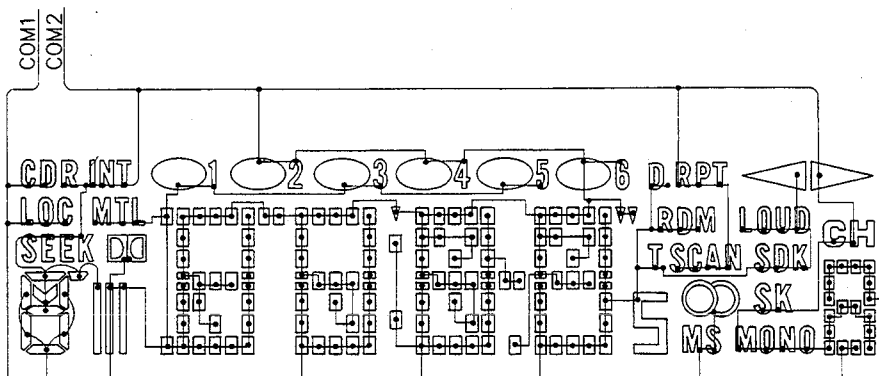
Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	DISB	Output	C	AUX control output
2	DPWCNT	Output	C	Front panel EJECT/REPLACE control signal output
3	BRXEN	Input/Output		Bus reception enable line
4	BSRQ	Input/Output		Data communications serial poll request
5	BSCK	Input/Output		Bus serial clock input/output
6	BSO	Output		Bus serial data output
7	BSI	Input		Bus serial data input
8	MCMUT	Input		Mechanism mute request
9	TAPLD	Input		Cassette loading input
10	NOR/REV	Input		Deck FWD/REV sensor input
11	REMIN			Key input
12	ASENS			ACC sense input
13	BSSENS			Back up sense input
14	SK	Input		SK signal input
15	DK	Input		DK signal input
16	AUX+B	Input		AUX input
17	DSSENS	Input		Front panel EJECT/REPLACE sensor input
18	TUNPW	Output	N	Tuner power supply control
19	TAPPW	Output	N	Deck power supply control
20	BUSMUT	Output	N	Bus mute output
21	PEE	Output	C	Beep tone output
22	DMUTE	Output	C	Deck mute output
23	TMUTE	Output	C	Tuner mute output

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
24	SYSPW	Output	C	System power supply control
25	MUTE	Output	C	Mute
26	FMSD	Input		FM IF input
27	AMIF	Input		AM IF input
28	SL	Input		Signal level input
29	ST	Input		Stereo signal input
30	VDD			
31	AMIN	Input		AM VCO input
32	FMIN	Input		FM VCO input
33	GND			
34, 35	Xout. in			
36, 37	E00.1			
38-40				Not used
41	VDD			
42	BRST	Output	C	Bus reset
43, 44				Not used
45	LDT	Output	C	LCD driver data output
46	LCK	Output	C	LCD driver clock
47	LCE	Output	C	LCD driver CE
48	LINH	Output	C	LCD driver INH
49	VST	Output	C	E-VOL strobe
50	VDT	Output	C	E-VOL data
51	VCK	Output	C	E-VOL clock
52	LOUD	Output	C	Loudness
53	MS	Output	C	Music signal input
54	NR	Output	C	Dolby NR ON/OFF output
55	MTL	Output	C	Deck METAL (70 μ S) output
56	MECPW	Output	C	Deck power supply control
57				Not used
58	ST-W	Output	C	Stereo wide
59	MONO	Output	C	Mono output
60	SEEK	Output	C	"L" output when SEEK
61	LW	Output	C	LW output
62	LOCL	Output	C	Local L
63	LOCH	Output	C	Local H
64	TUNANT	Output	C	Antenna output
65	FM/AM	Output	C	FM/AM switching
66	EQFDA	Output	C	1P, EQ Fc control
67	EQFDB	Output	C	1P, EQ Fc control
68	EQLDA	Output	C	1P, EQ level control
69	EQLDB	Output	C	1P, EQ level control
70	EQINH	Output	C	1P, EQ INH
71	ILLMG	Output	C	Green illumination light output
72	ILLMA	Output	C	Amber illumination light output
73	KS1	Output	C	Model sense output
74	KS0	Output	C	Model sense output
75-78	K3-K0	Input		Key matrix input
79, 80				Not used

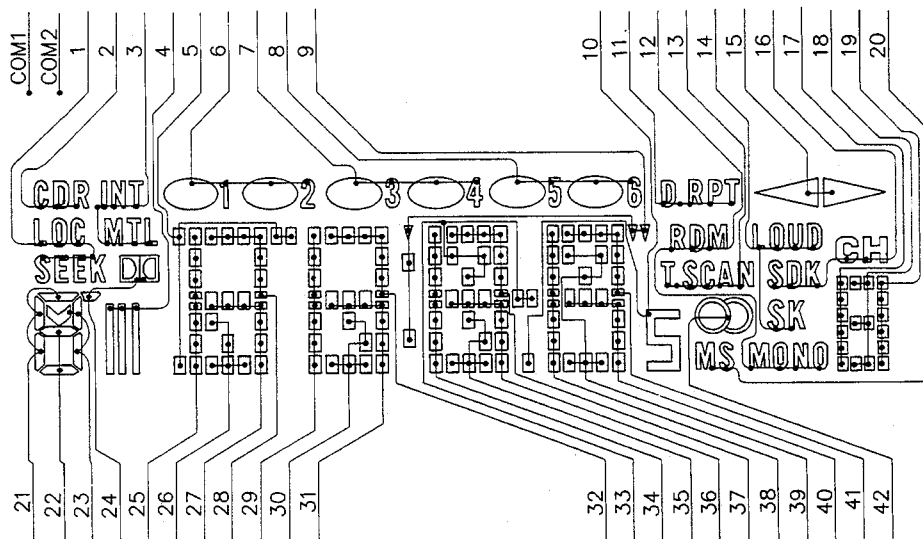
Output Format	Meaning
C	CMOS Output
N	N channel open drain

•LCD (CAW1124)

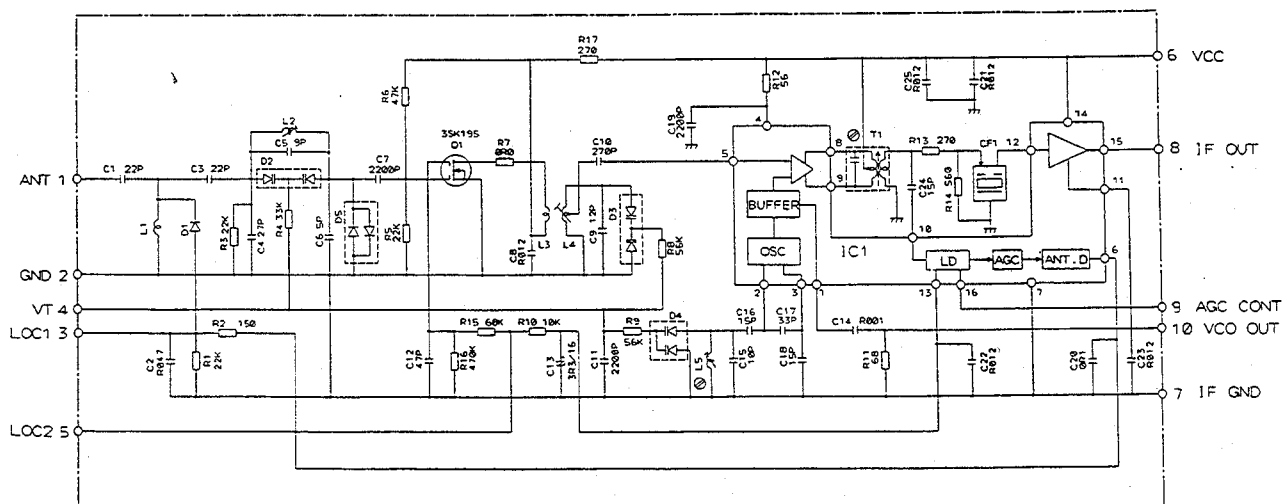
COMMON



SEGMENT



•FM FRONT END (CWB1035)



NOTE:

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- |— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2-2R2
0.022-R022

7

8

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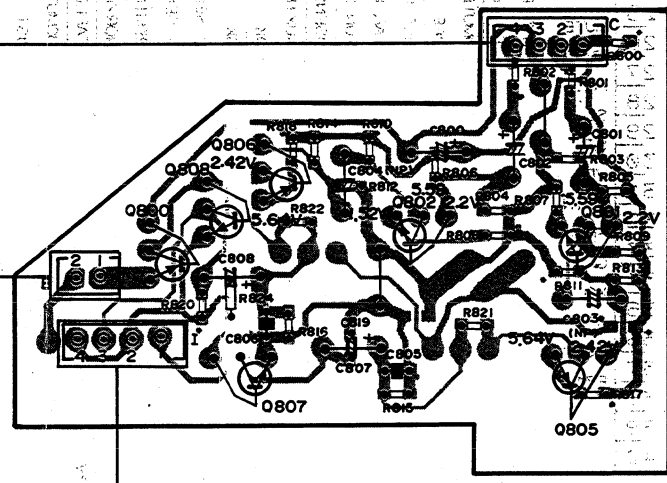
11

12

9-Q963 Q551 IC501
50 Q552 Q553 Q554
979 Q918 Q980 Q978

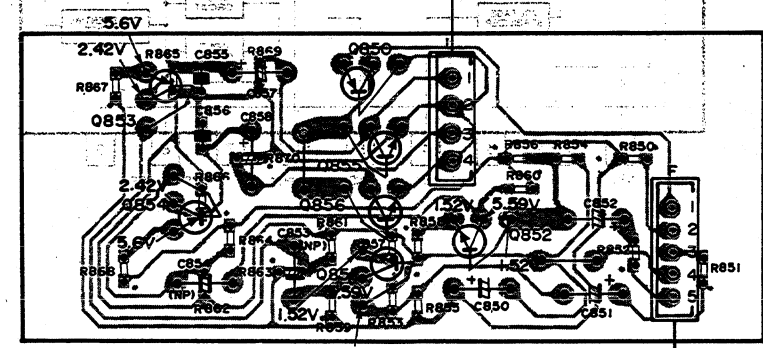
PRE OUT(1) P.C. BOARD

IC, Q Q800 Q808 Q806 Q802 Q801 Q807 Q805



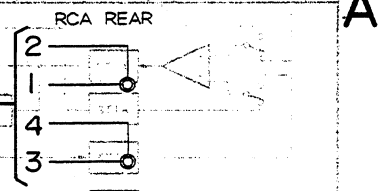
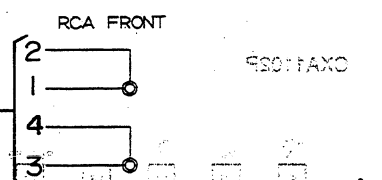
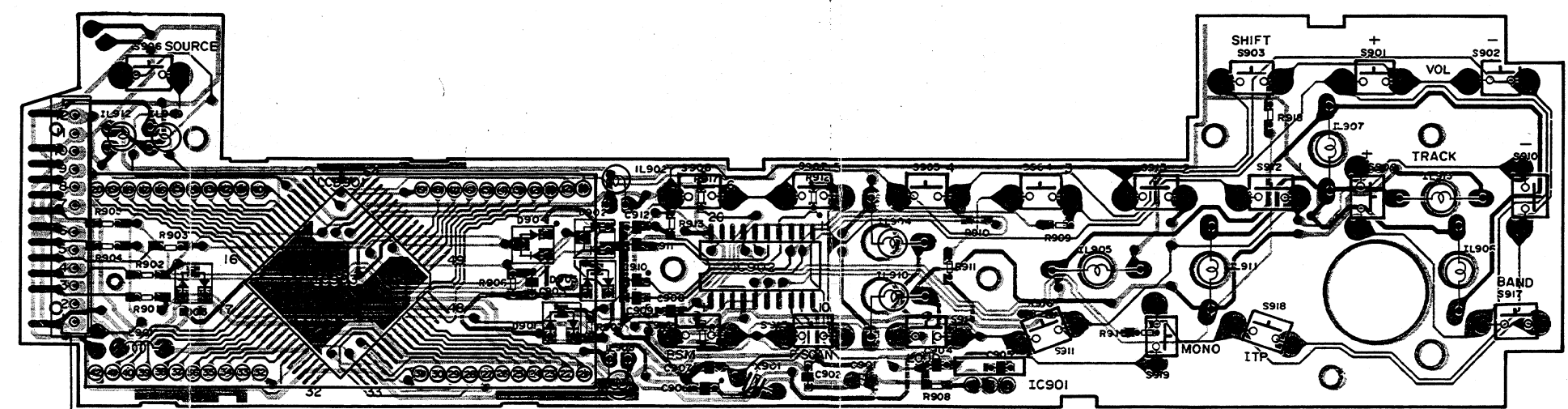
PRE OUT(2) P.C. BOARD

IC, Q Q853 Q854 Q850 Q855 Q856 Q851 Q852



KEY BOARD UNIT

IC, Q IC903 IC902 IC901
ADJ



TO FM/AM
TUNER UNIT

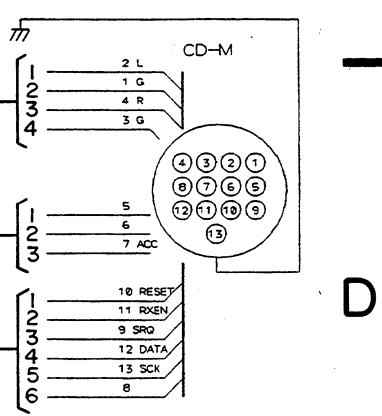
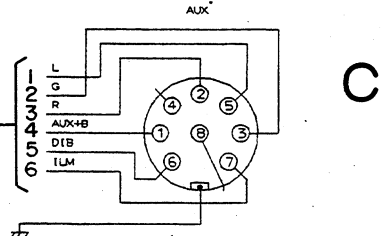
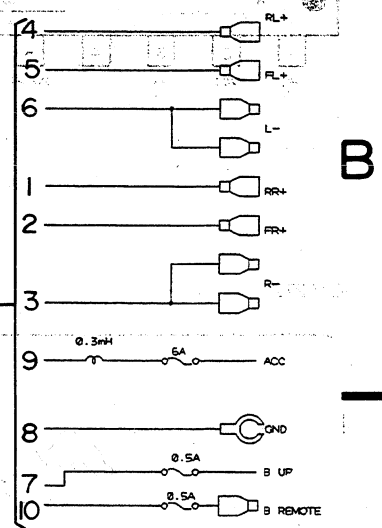


Fig. 6

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8

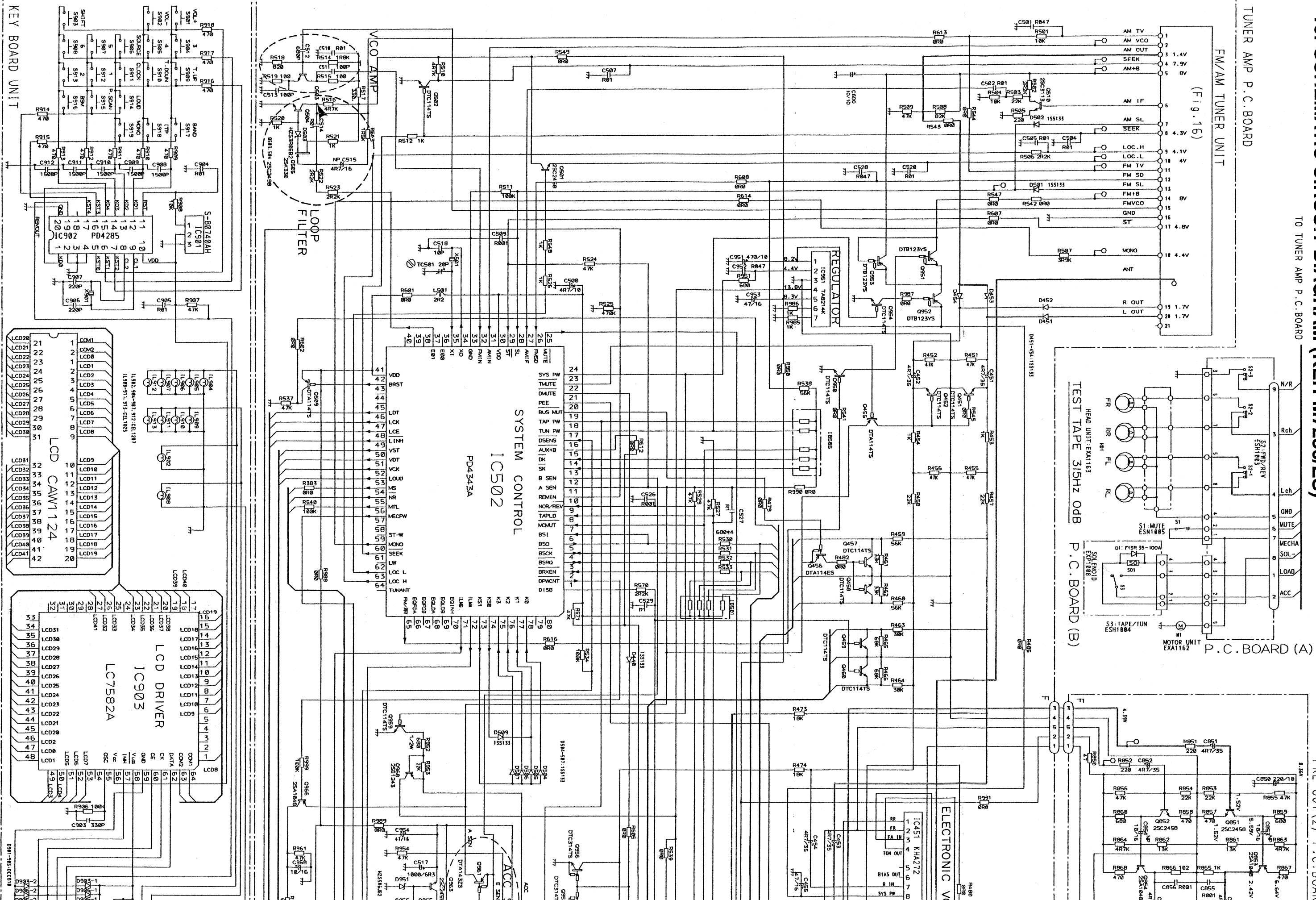
9

10

11

12

PRE OUT (2) P.C. BOARD



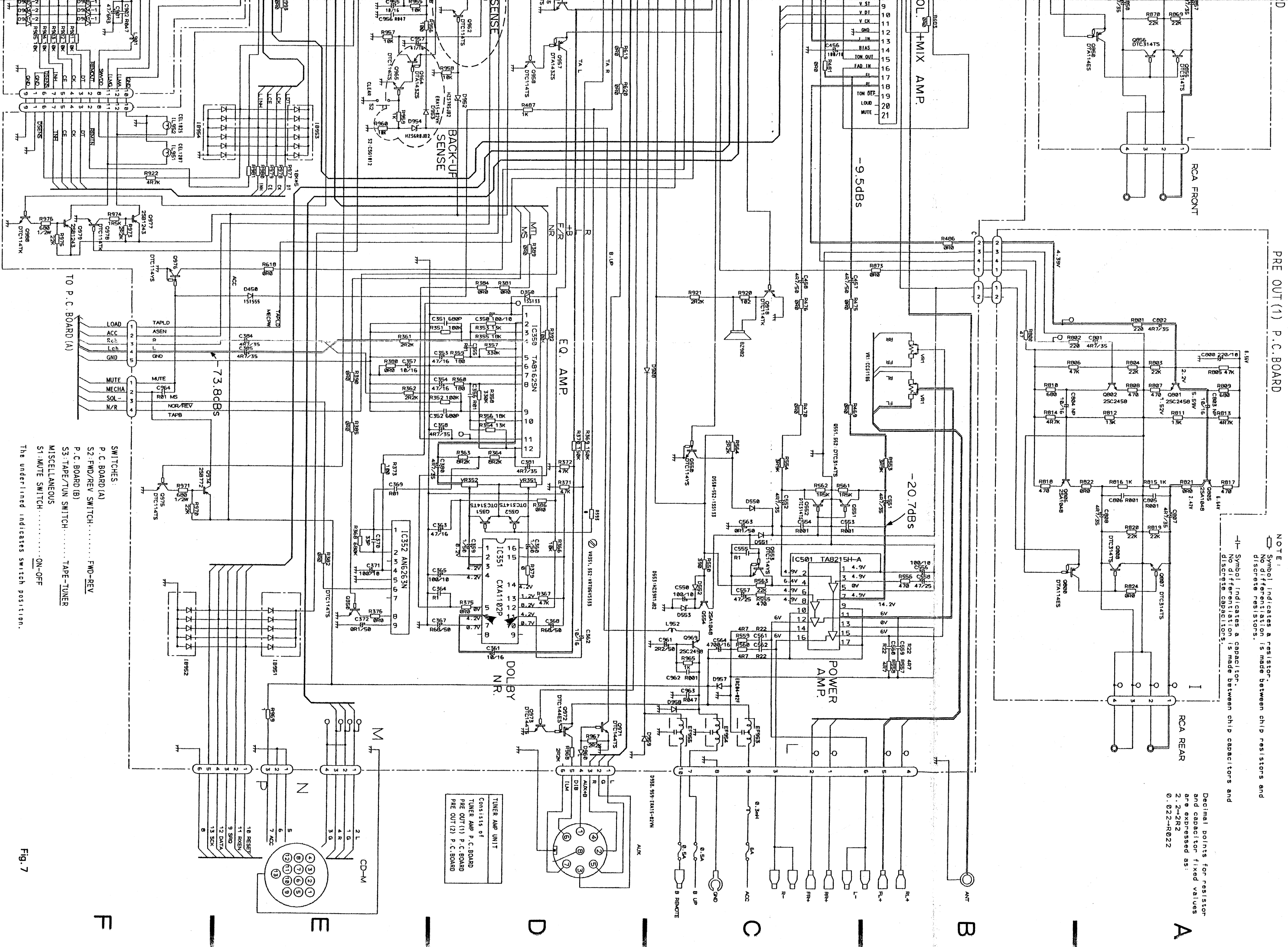
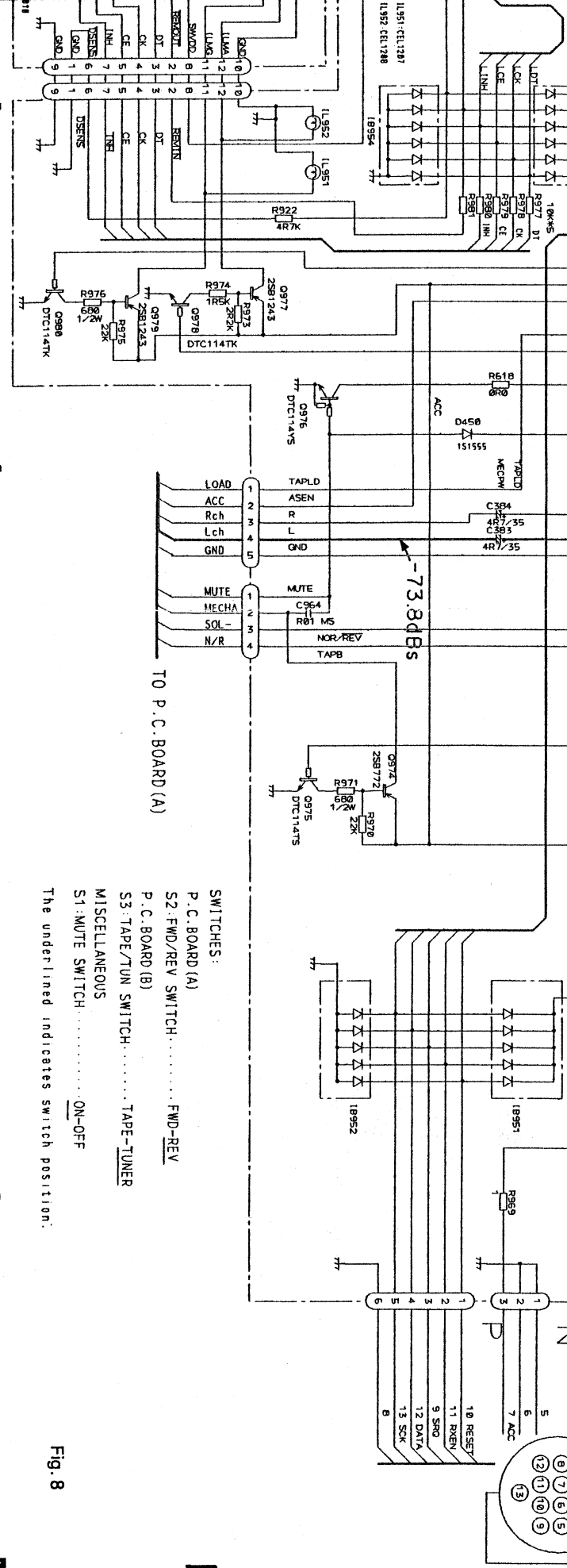
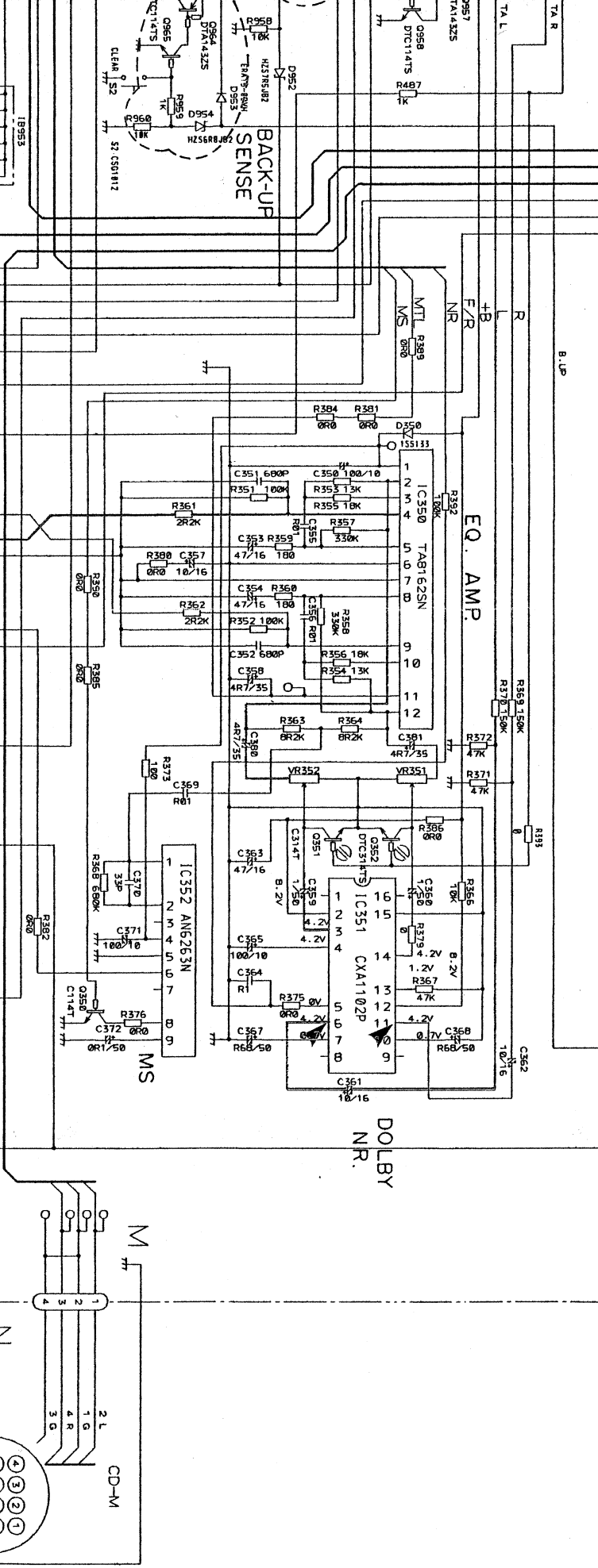
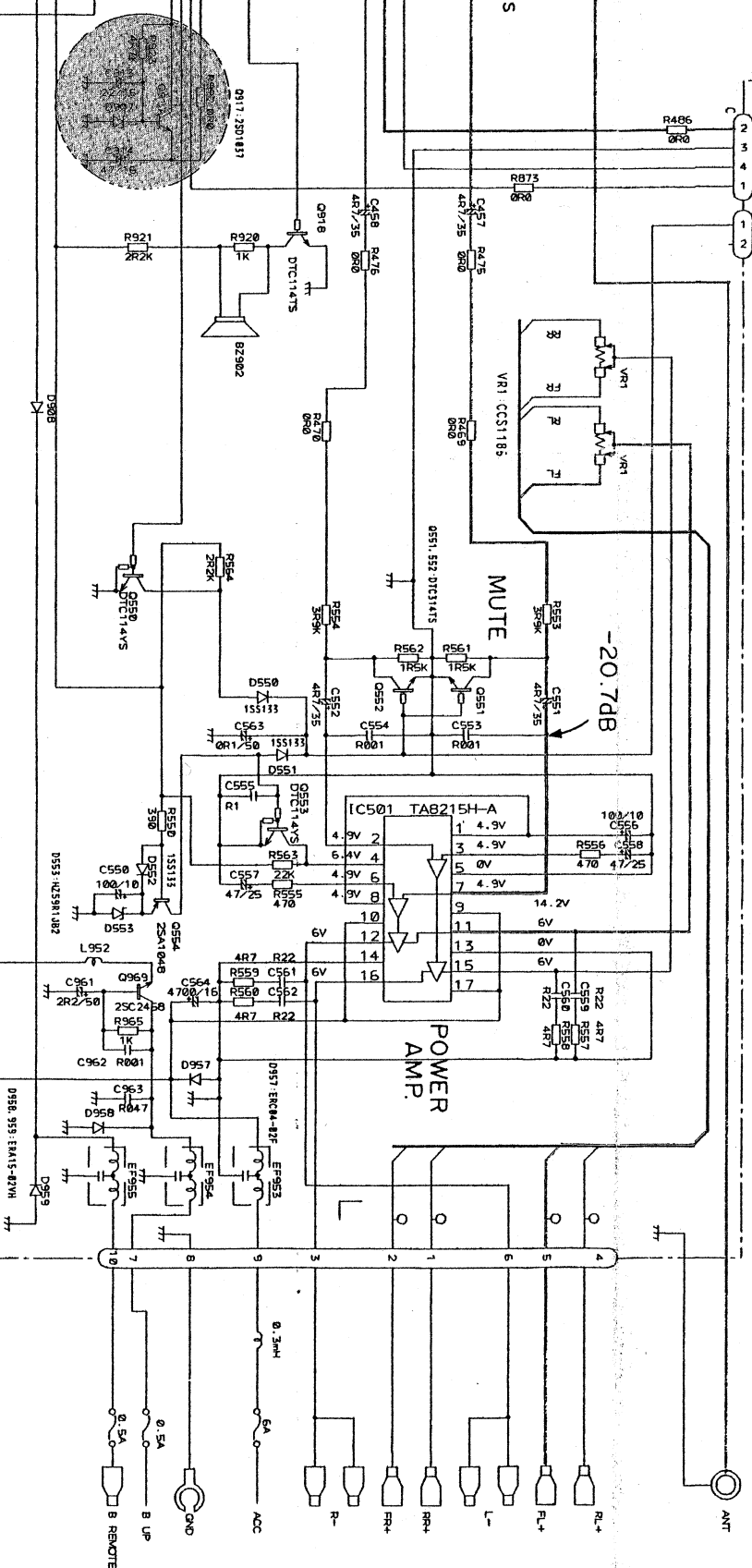
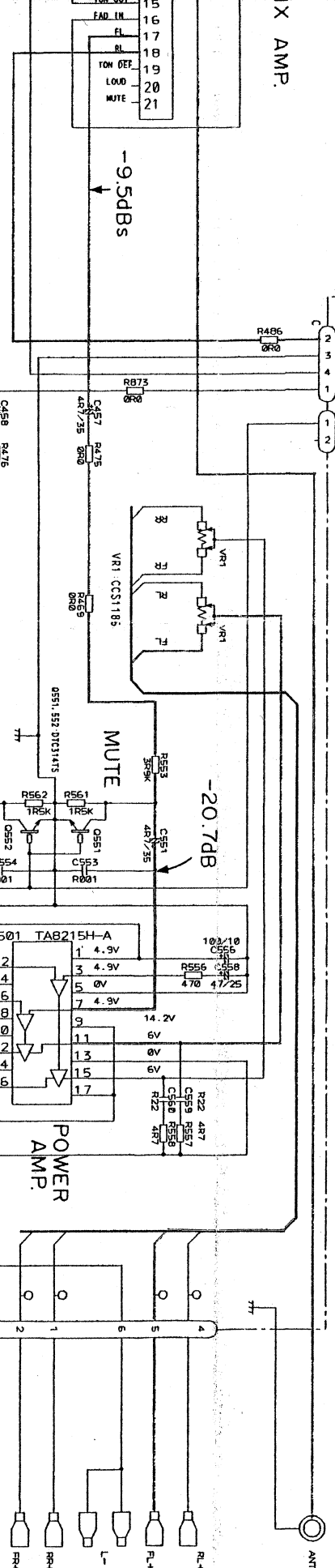
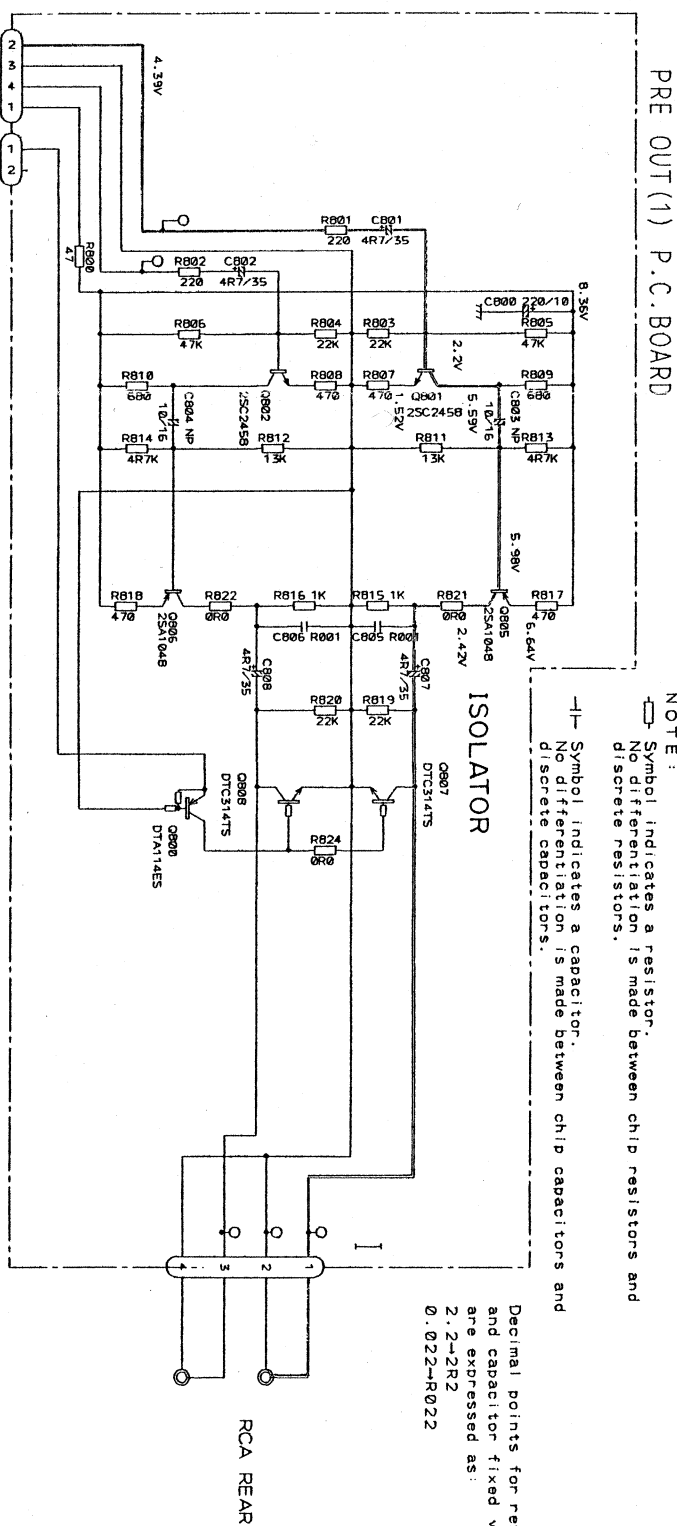
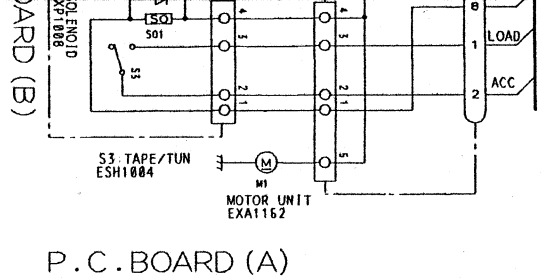


Fig. 7



NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- ⊥ Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:

2.2→2R2
0.022→R022

SWITCHES:
P.C. BOARD (A)
S2. FWD/REV SWITCH..... FWD-REV
P.C. BOARD (B)
S3. TAPE/TUN SWITCH..... TAPE-TUNER
MISCELLANEOUS
S1. MUTE SWITCH..... ON-OFF
The underlined indicates switch position.

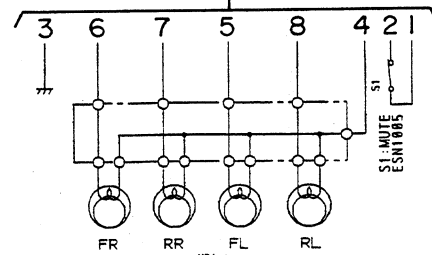
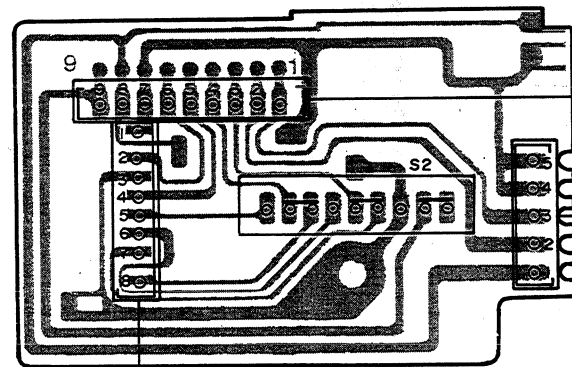
Fig. 8

12. CONNECTION DIAGRAM (KEH-M7300/EW, M7300SDK/WG)

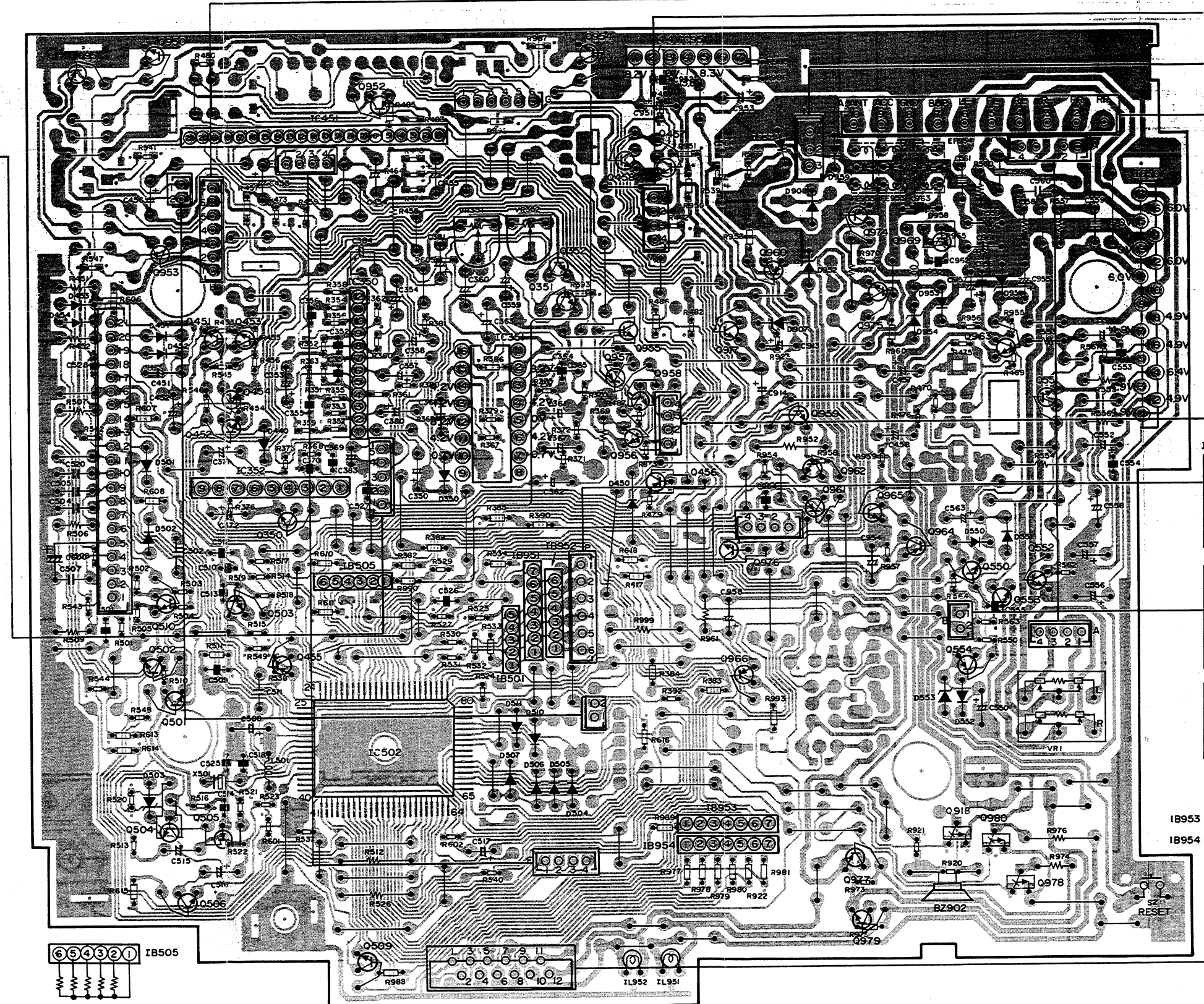
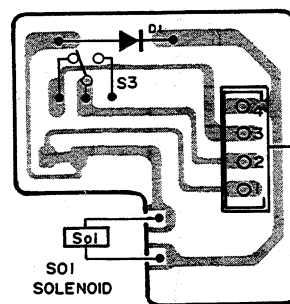
TUNER AMP P.C. BOARD

Q951	Q950	Q451	Q453	Q454	Q350	Q952	IC451	Q954	Q352	Q351	Q458	Q457	Q960	Q974	Q975	Q969	Q963	Q551	IC501						
IC,Q	Q510	Q502	Q501	Q504	Q505	Q506	Q503	Q455	IC502	Q509	Q958	Q957	Q956	Q955	IC951	Q966	Q959	Q962	Q961	Q965	Q964	Q550	Q552	Q553	Q554
ADJ											VR351	VR352													

P.C. BOARD(A)



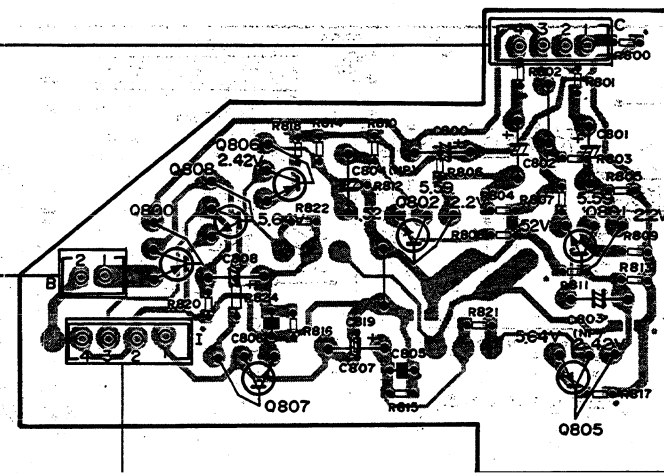
P.C. BOARD(B)



Q969 Q963 Q551 IC501
Q54 Q550 Q552 Q553 Q554
Q977 Q979 Q918 Q980 Q978

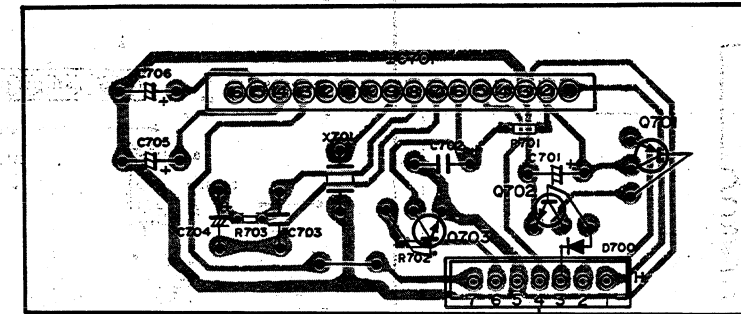
PRE OUT(1) P.C. BOARD

IC, Q Q800 Q808 Q806 Q802 Q801 Q805
Q807



SDK P.C. BOARD

IC, Q IC701 Q703 Q702 Q701



KEY BOARD UNIT

IC, Q IC903 IC902 IC901
ADJ

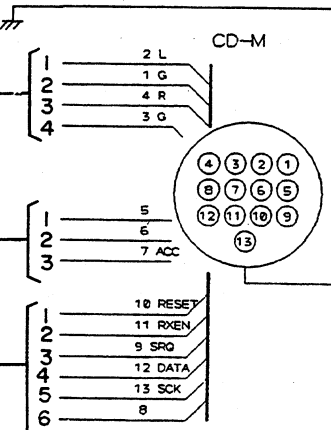
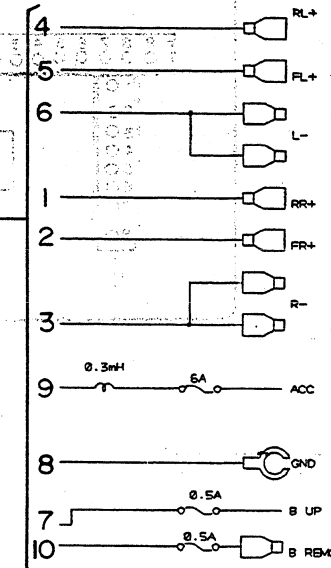
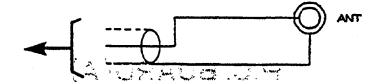
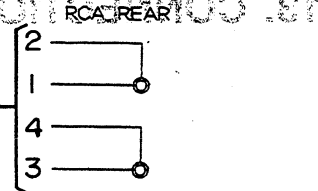
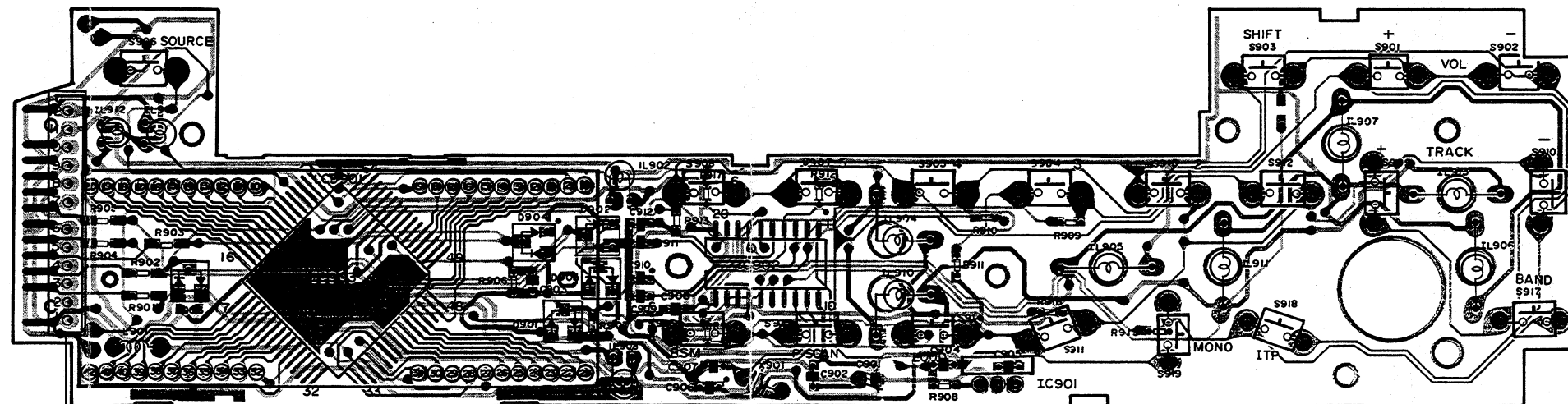
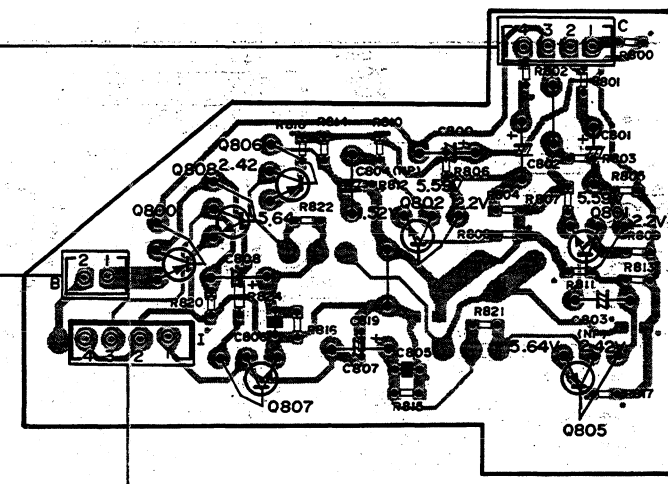


Fig. 9

Q963 Q551 IC501
Q552 Q553 Q554
Q918 Q980 Q978

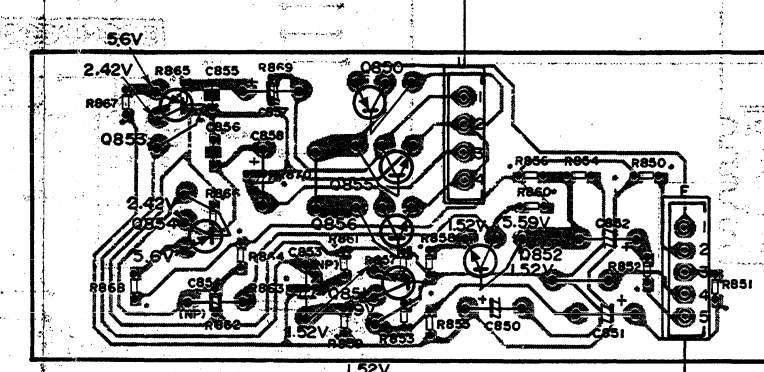
PRE OUT(1) P.C. BOARD

IC, Q Q800 Q808 Q806 Q802 Q801 Q805
Q807



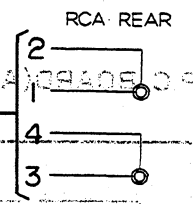
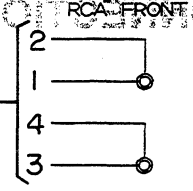
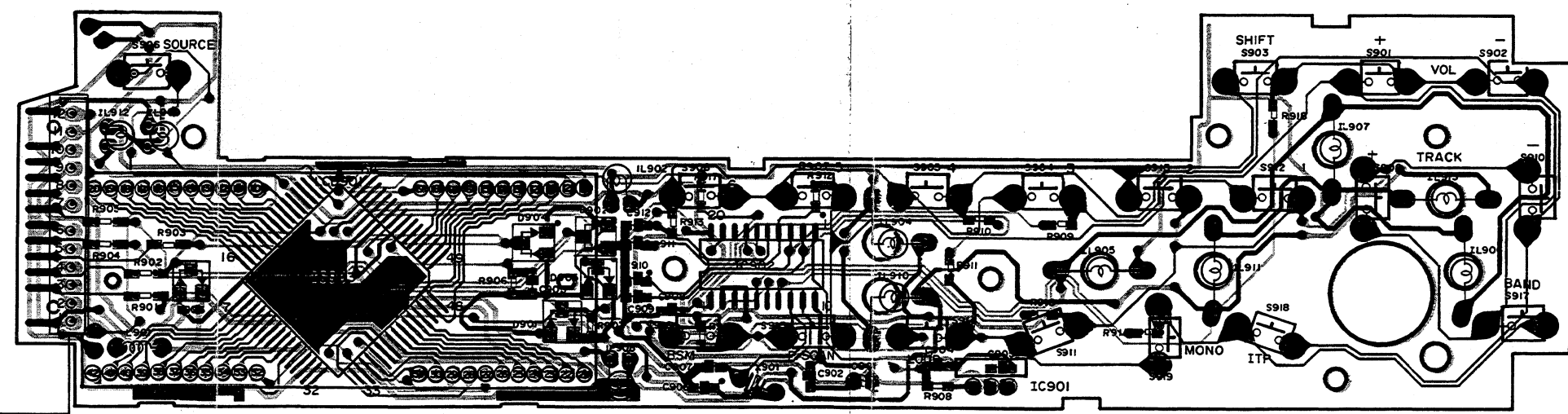
PRE OUT(2) P.C. BOARD

IC, Q Q853 Q854 Q850 Q855 Q856 Q851 Q852



KEY BOARD UNIT

IC, Q IC903 IC902 IC901
ADJ



TO FM/AM
TUNER UNIT

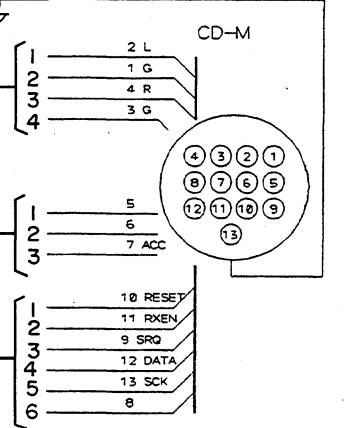
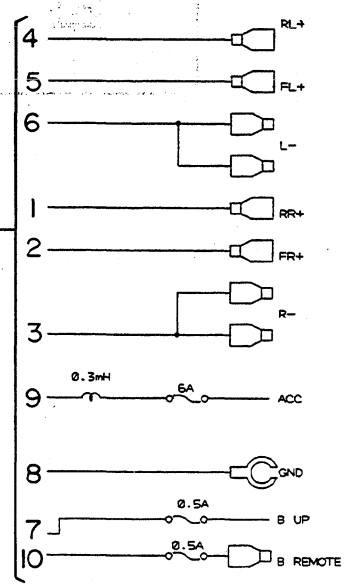
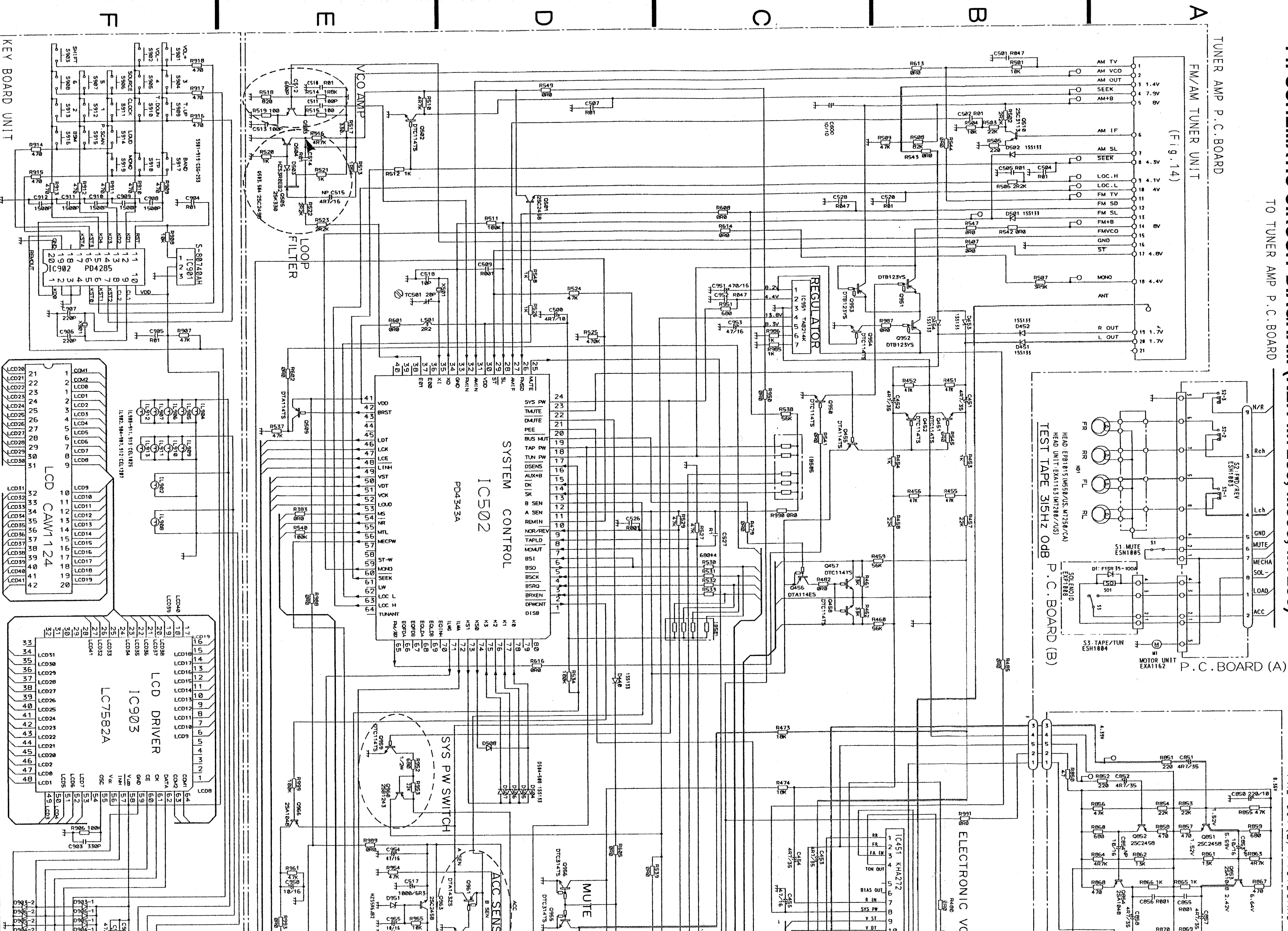


Fig. 10

14. SCHEMATIC CIRCUIT DIAGRAM (KEH-M7200, M550, M7250)

TO TUNER AMP P.C. BOARD

PRE OUT (2) P.C. BOARD



PRE OUT (1) P.C. BOARD

NOTE:

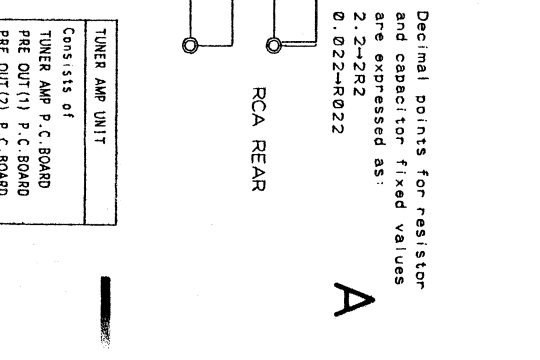
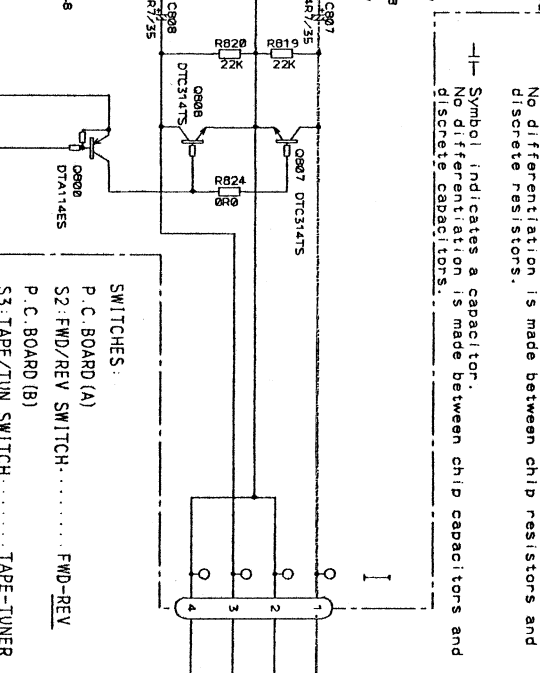
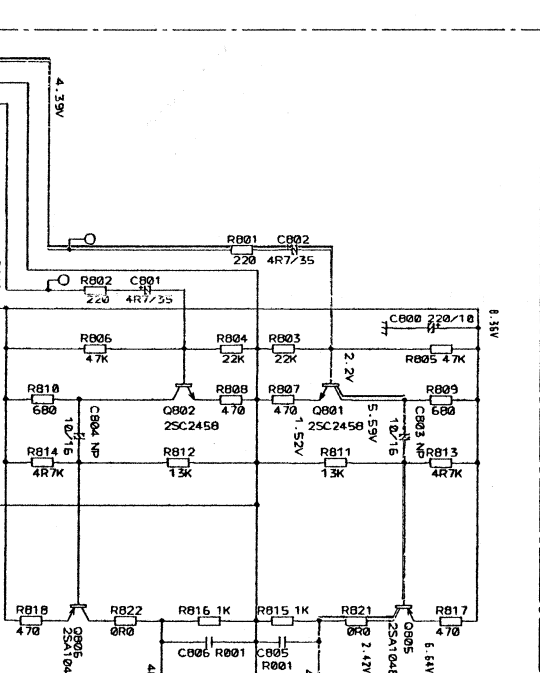
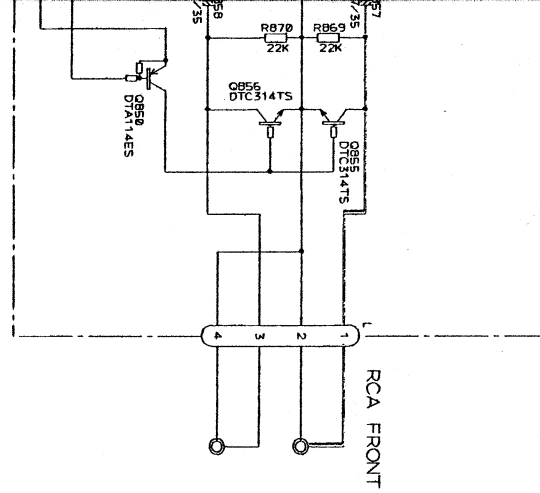
- Symbol indicates a resistor.
- No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
- No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2-2R2
0.022-R022

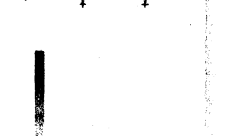
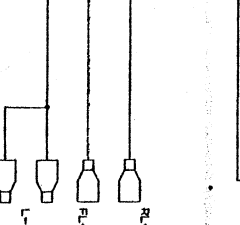
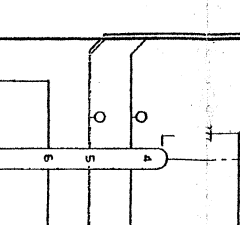
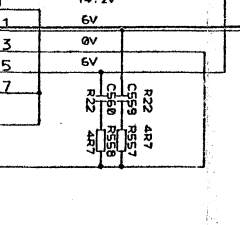
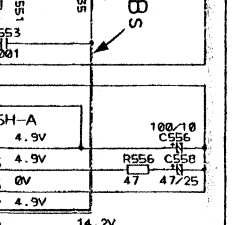
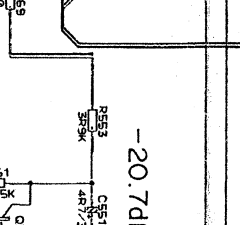
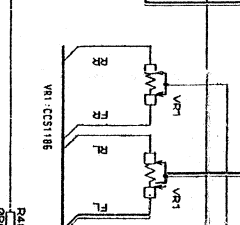
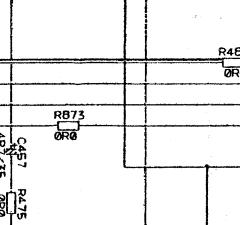
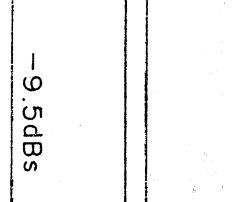
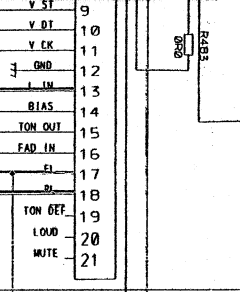
TUNER AMP UNIT

Consists of
TUNER AMP P.C. BOARD
PRE OUT(1) P.C. BOARD
PRE OUT(2) P.C. BOARD

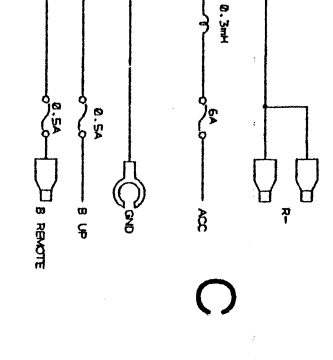
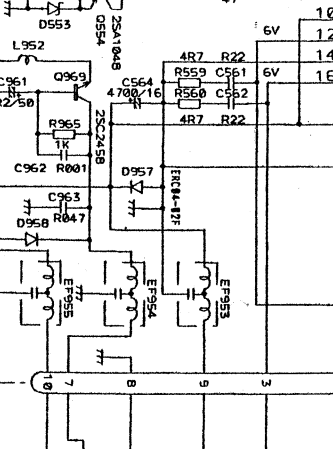
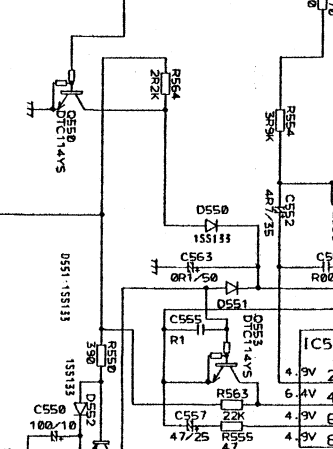
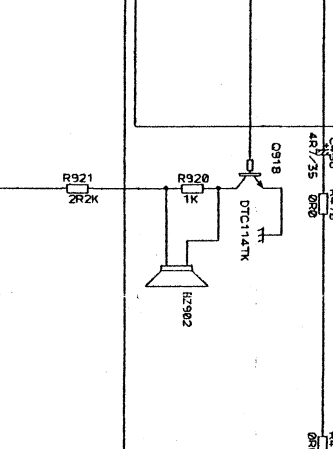
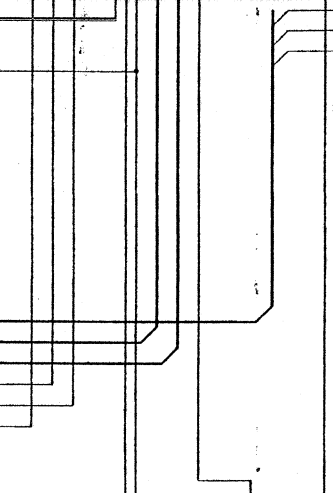
SWITCHES:
P.C. BOARD (A)
S2: FWD/REV SWITCH..... FWD-REV
P.C. BOARD (B)
S3: TAPE/TUN SWITCH..... TAPE-TUNER
MISCELLANEOUS
S1: MUTE SWITCH..... ON-OFF
The underlined indicates switch position.



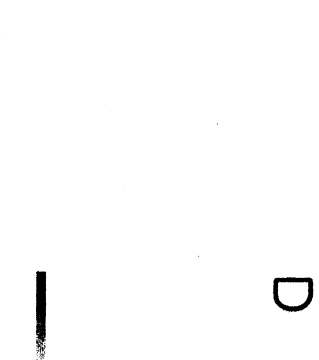
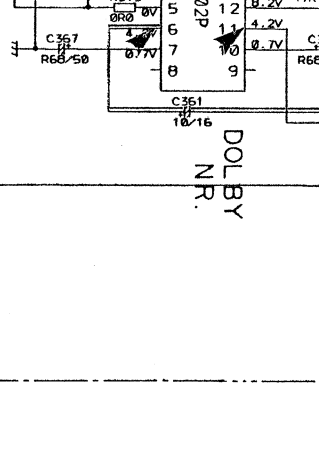
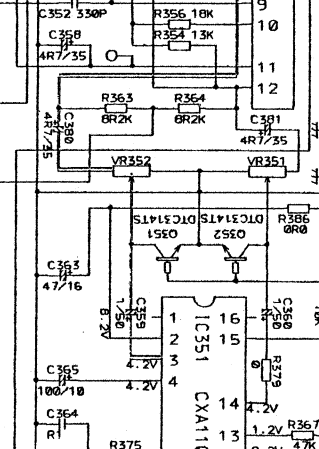
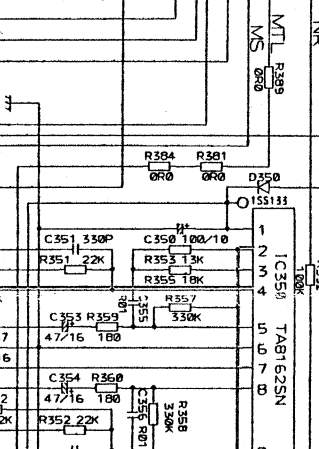
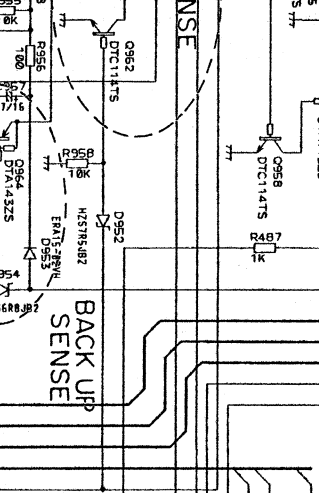
VOL. +MIX AMP.



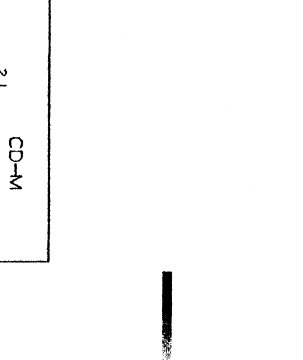
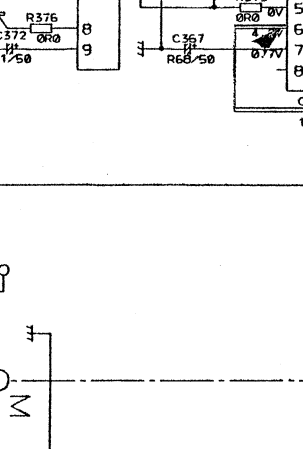
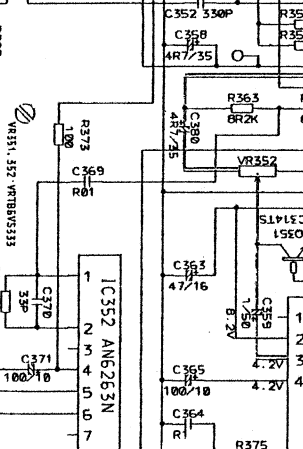
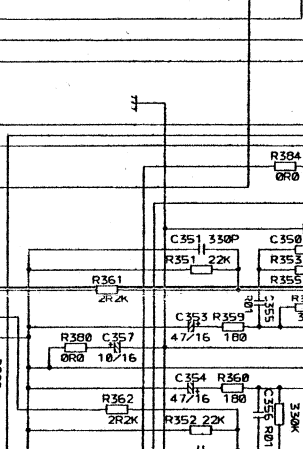
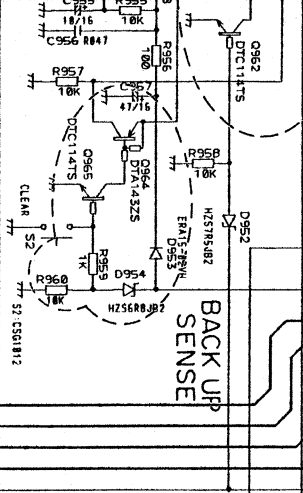
POWER AMP.



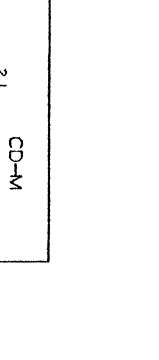
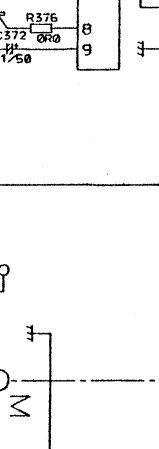
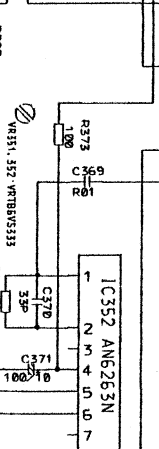
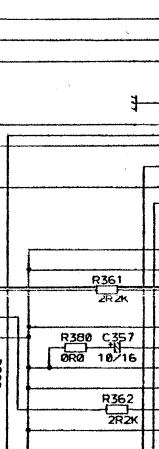
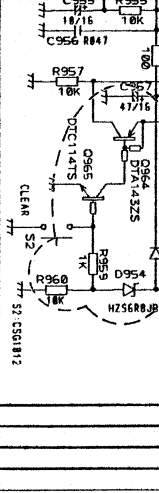
EQ. AMP.



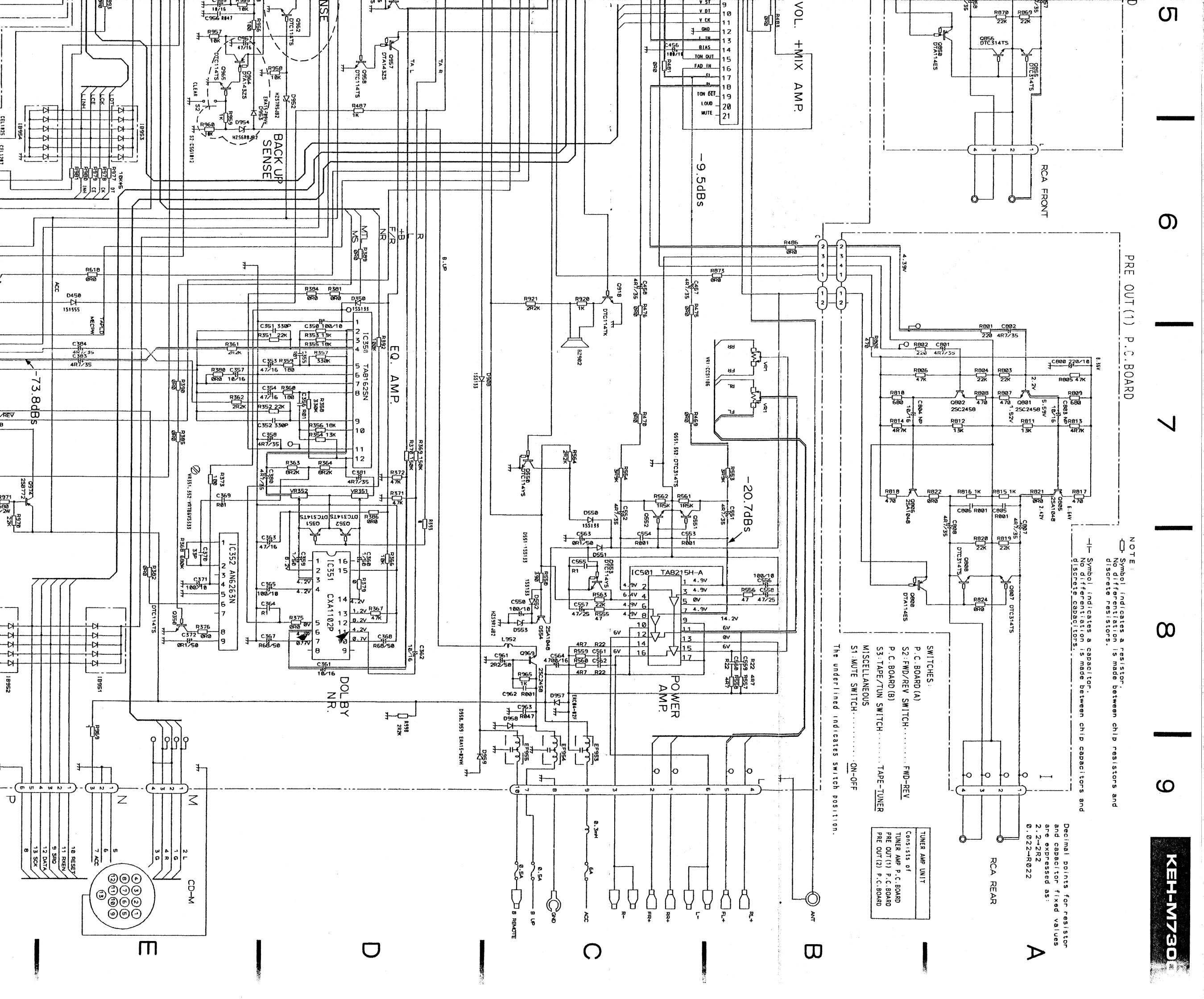
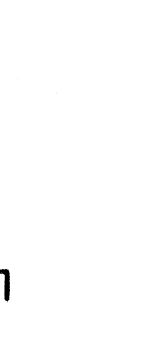
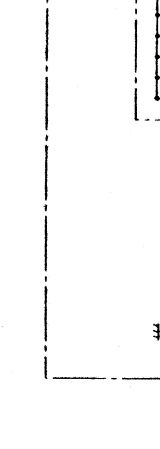
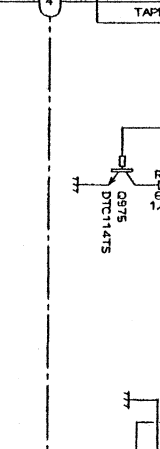
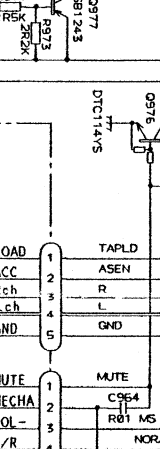
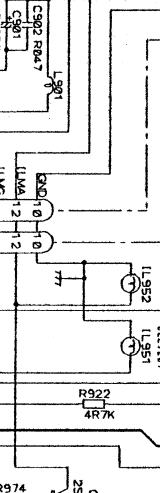
DOLBY NR.



BACK UP SENSE



-73.8dBs



KEH-M7200/VS	KEH-M550/VS	KEH-M7250/CA
R351, 352	100K	22K
C351, 352	680P	330P

Fig. 11

PRE OUT (1) P.C. BOARD

NOTE:

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

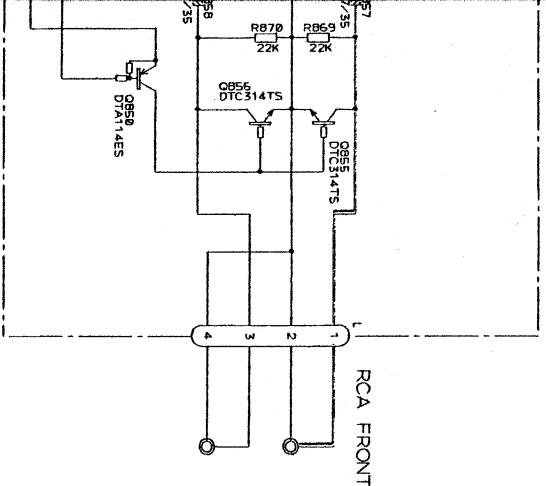
Decimal points for resistor and capacitor fixed values are expressed as:
2.2-2R2
0.022-R022

RCA REAR

TUNER AMP UNIT
Consists of
TUNER AMP P.C. BOARD
PRE OUT (1) P.C. BOARD
PRE OUT (2) P.C. BOARD

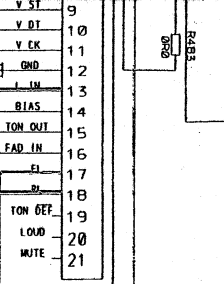
SWITCHES:
P.C. BOARD (A)
S2: FWD/REV SWITCH..... FWD-REV
P.C. BOARD (B)
S3: TAPE/TUN SWITCH..... TAPE-TUNER
MISCELLANEOUS
S1: MUTE SWITCH..... ON-OFF

The underlined indicates switch position.



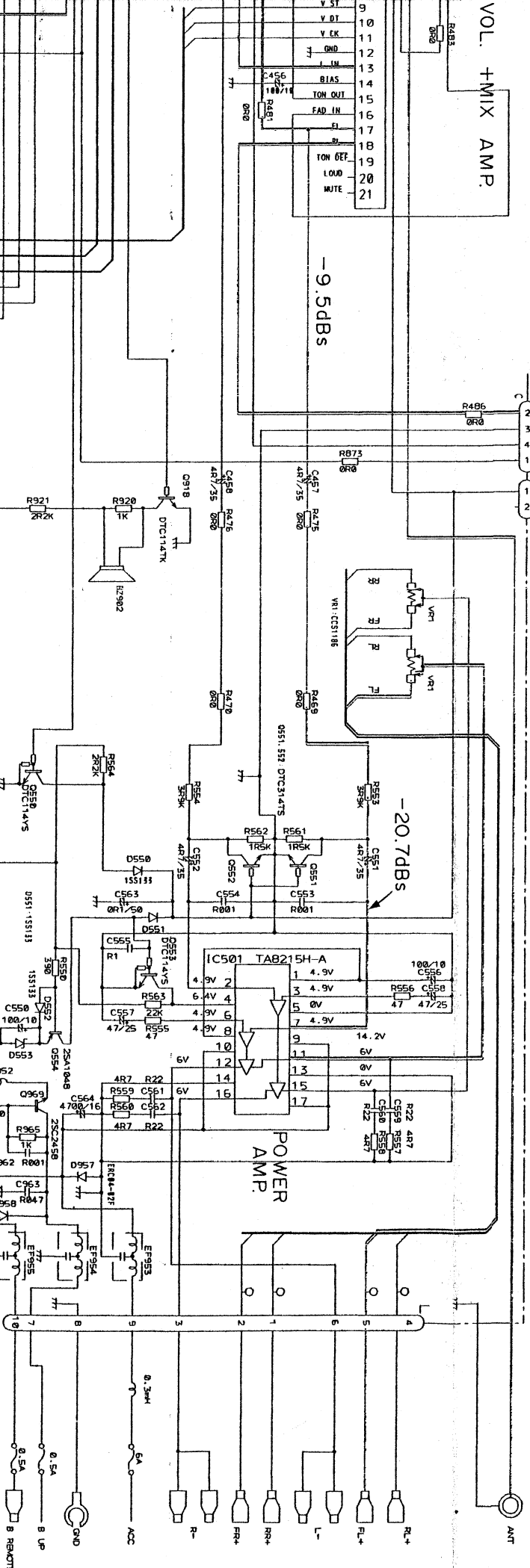
VOL. + MIX AMP.

-9.5dBs



-20.7dBs

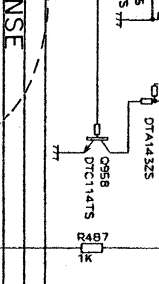
POWER AMP.



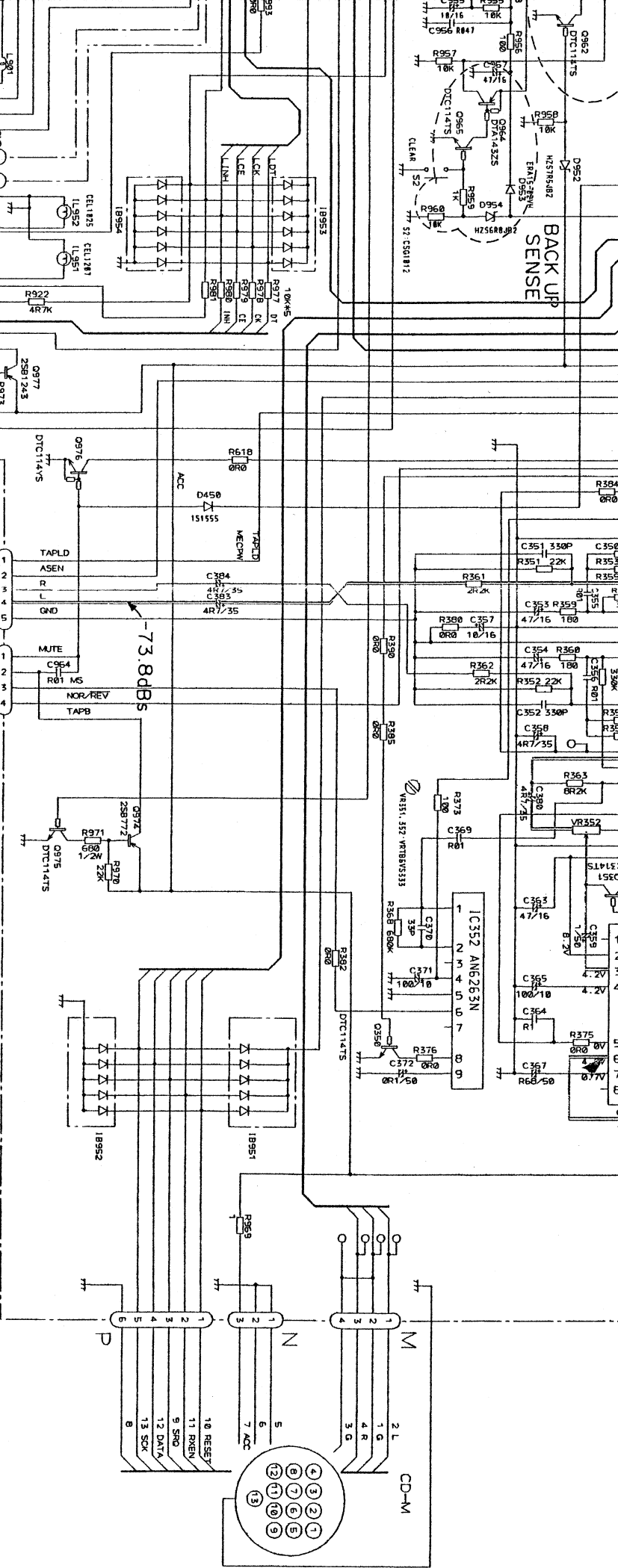
EQ. AMP.

DOLBY NR.

BACK UP SENSE



-73.8dBs



TO P.C. BOARD (A)

KEH-M7200/VS	KEH-M550/VS	KEH-M7250/CA
R351, 352	100K	22K
C351, 352	680P	330P

Fig. 11

15. CIRCUIT DIAGRAM AND PATTERN
15.1 FM/AM TUNER UNIT (KEH-M7300/EW)

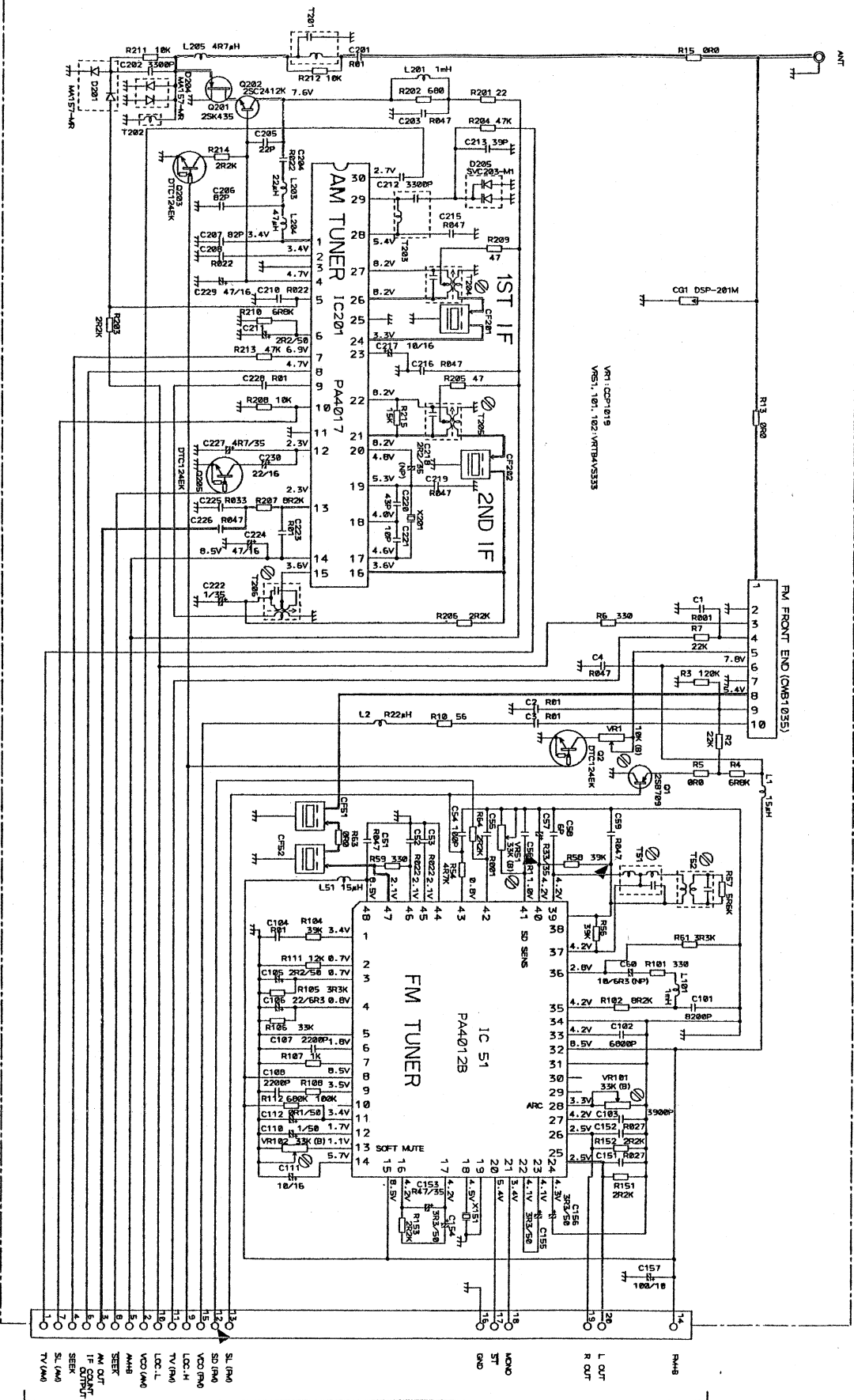
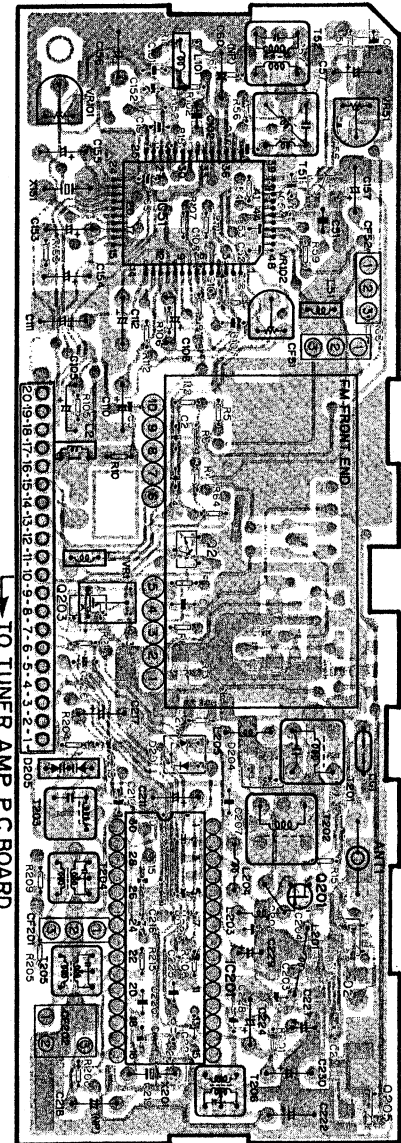


Fig. 12

NOTE:
- Symbol indicates a resistor.
- No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
- No differentiation is made between chip capacitors and discrete capacitors.
- Decimal points for resistor and capacitor fixed values are expressed as:
2.2-2R2
0.022-R022

IC, Q	ADJ	T52	VR101	VR51	Q1	IC51	VR102	VR1	Q2	Q203	IC201	Q201	Q202	T204	T205	T206	Q205
-------	-----	-----	-------	------	----	------	-------	-----	----	------	-------	------	------	------	------	------	------



TO TUNER AMP P.C. BOARD

TO TUNER
AMP P.C. BOARD

Fig. 13

15.2 FM/AM TUNER UNIT (KEH-M7200/US, M550/US, M7250/CA)

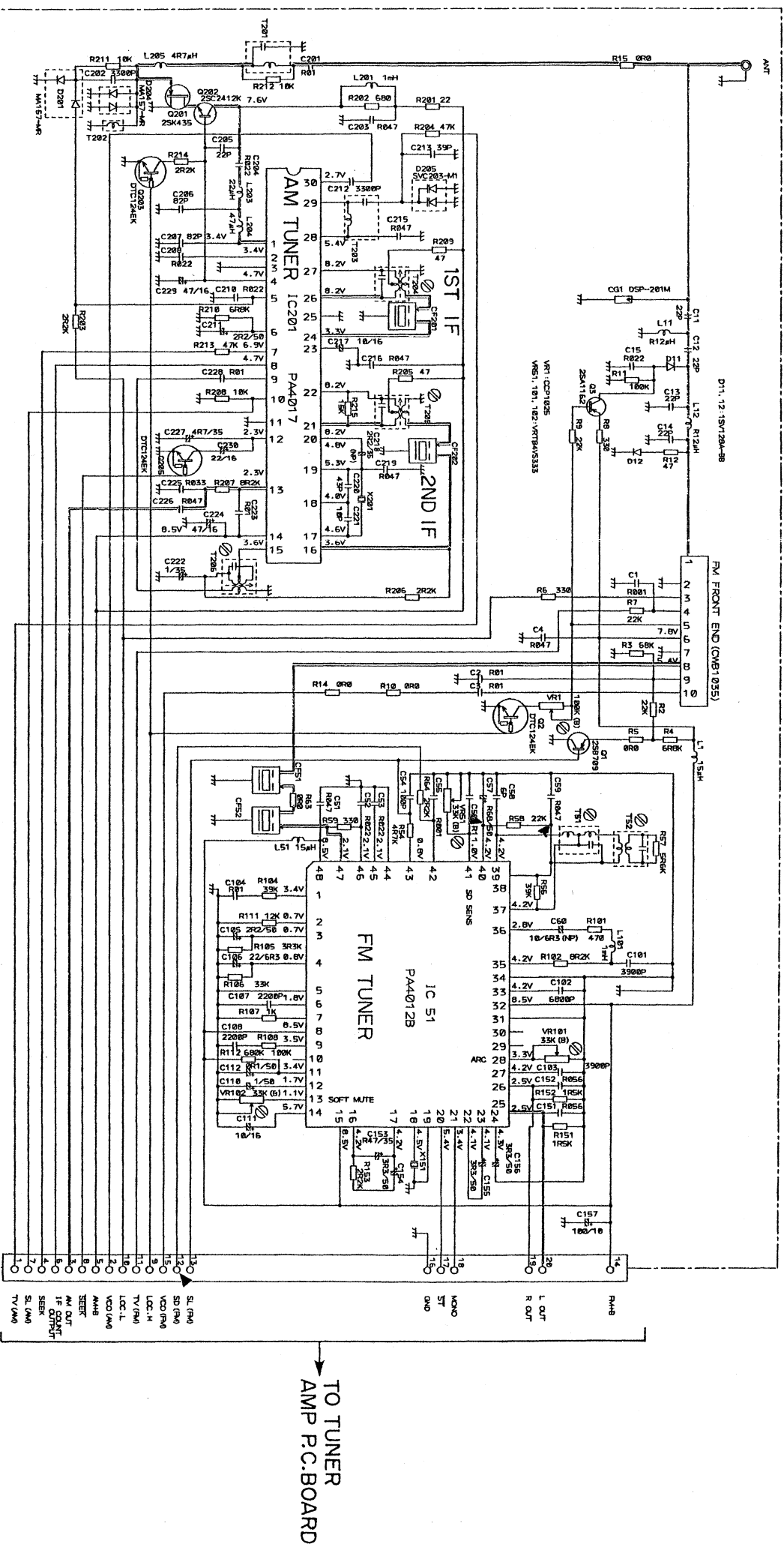


Fig. 14

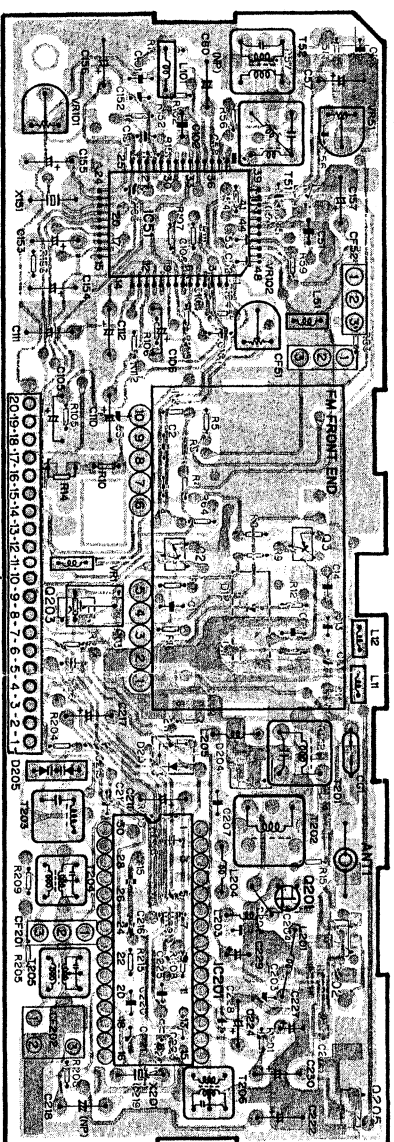
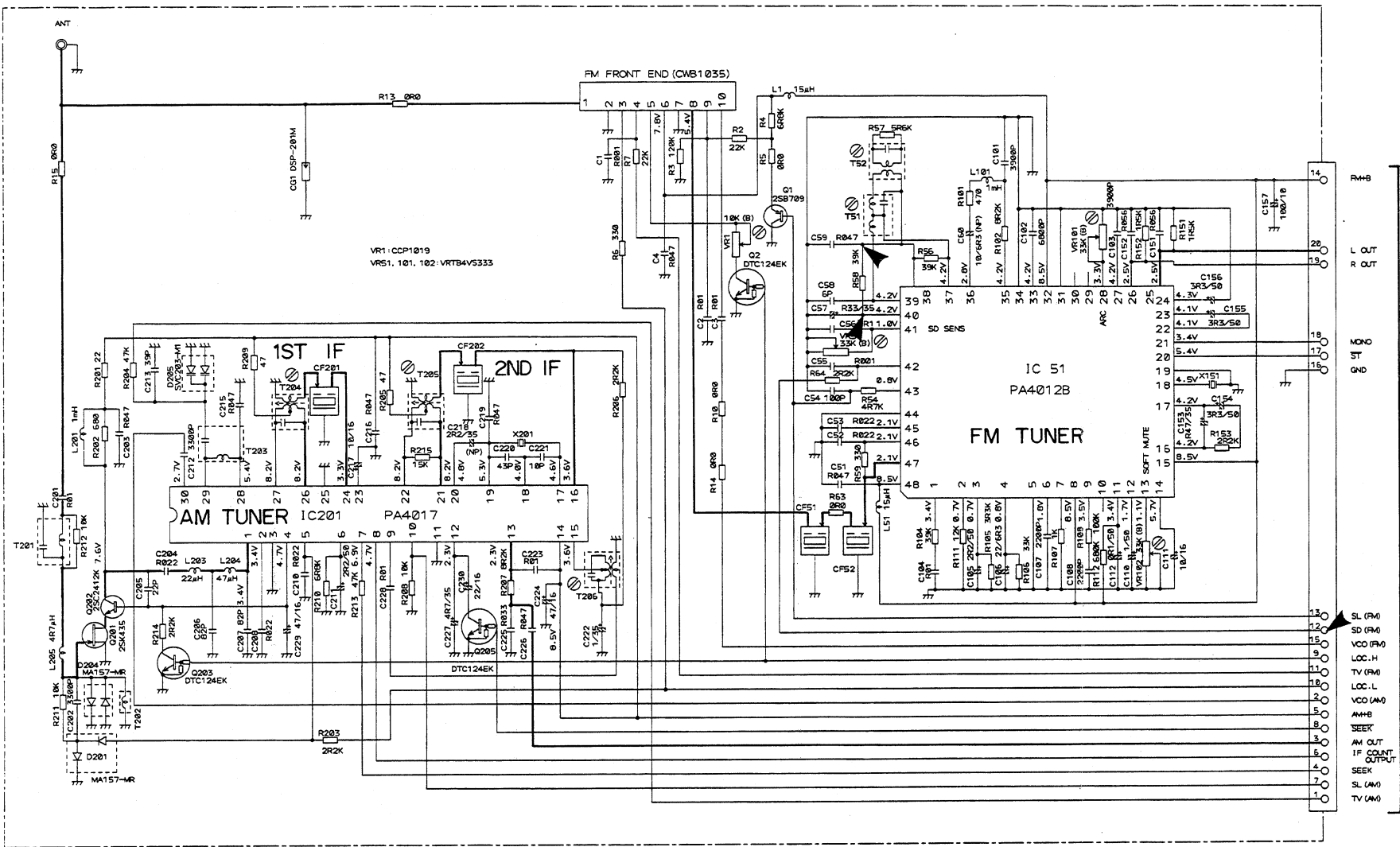


Fig. 15

15.3 FM/AM TUNER UNIT (KEH-M7250/ES)



15.4 FM/AM TUNER UNIT (KEH-M7300SDK/WG)

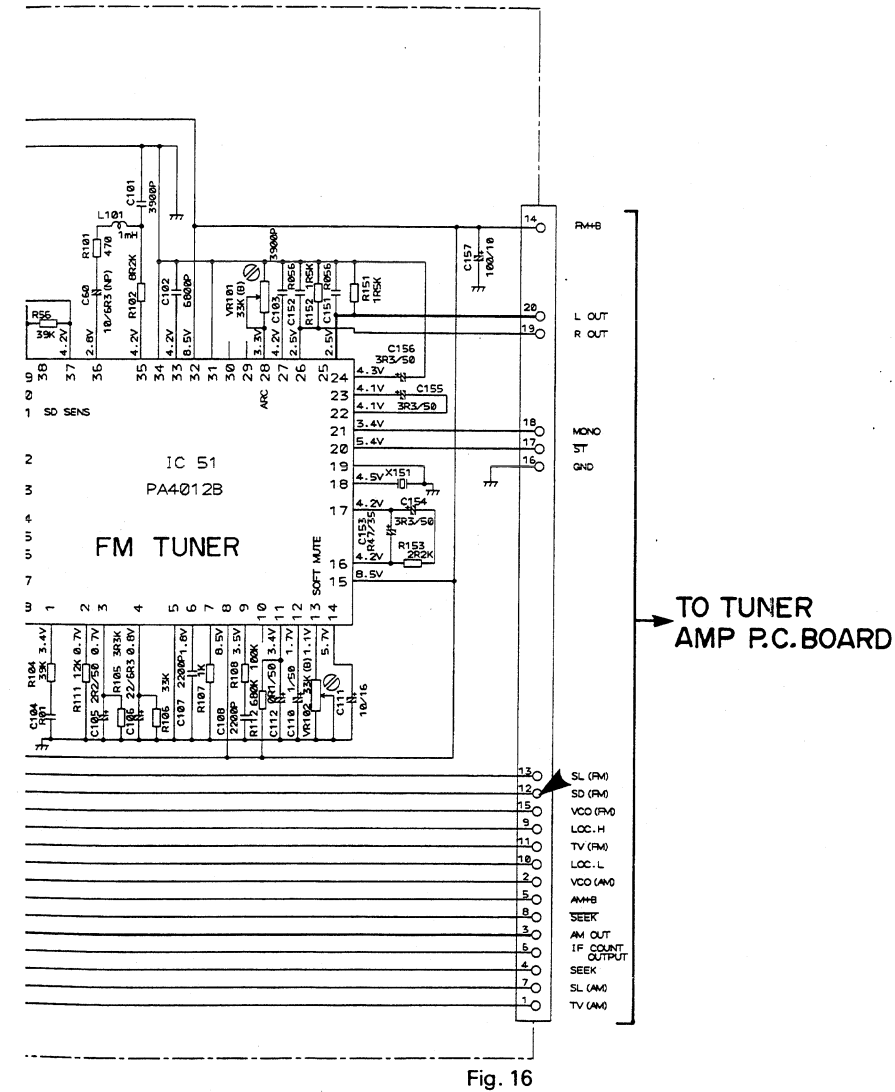


Fig. 16

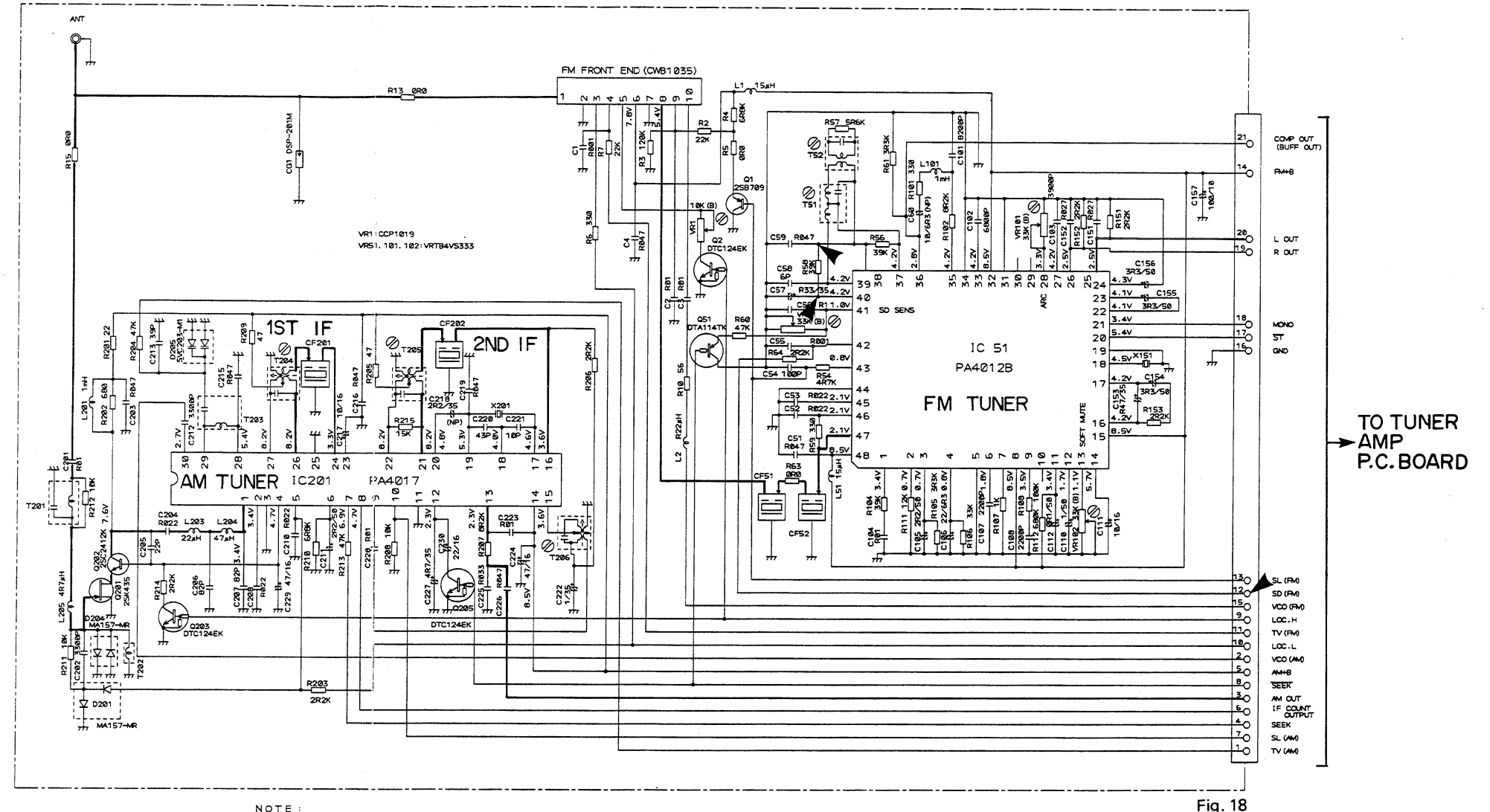


Fig. 18

NOTE:

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- ⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor
and capacitor fixed values
are expressed as:
2.2→2R2
0.022→R022

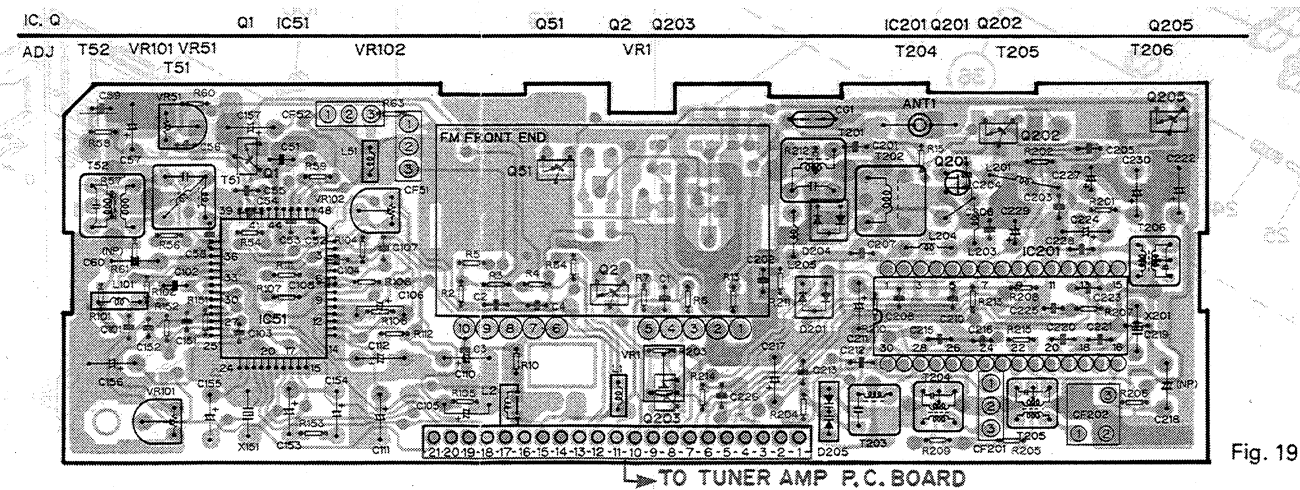


Fig. 19

16. CHASSIS EXPLODED VIEW

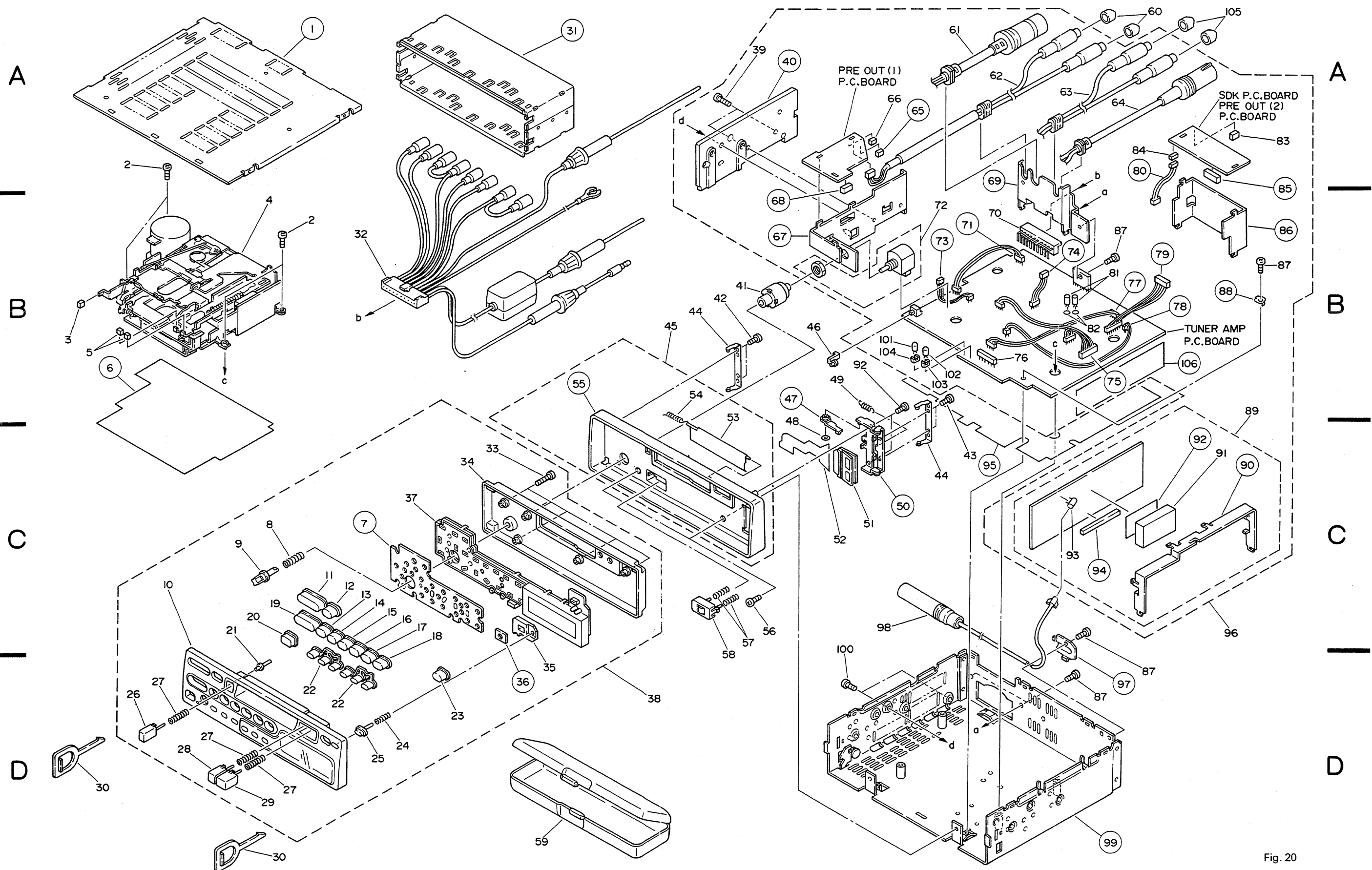


Fig. 20

•Parts List (KEH-M7300/EW)

NOTE:

- The parts marked with "⊙" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Case	CNB1431	45	Panel Unit	CXA4134
2	Screw	BMZ26P050FMC	46	Button	CAC2988
3	Button	CAC2819	47	Arm Unit	CXA4000
⊙ 4	Cassette Mechanism Assy	EXK1735	48	Washer	CBF1037
			49	Spring	CBH1395
5	Button	CAC2820	50	Holder Unit	CXA3999
6	Cover	CNM3157	51	Socket	CKS1664
7	Cushion	CNM3155	52	P.C. Board	CNP2597
8	Spring	CBH1391	53	Door	CAT1360
9	Knob(Fader)	CAA1272	54	Spring	CBH1350
10	Grille Unit	CXA4142	55	Panel	CNS2152
11	Button(Vol)	CAC2821	56	Screw	CBA1154
12	Button(Shift)	CAC2822	57	Spring	CBH1393
13	Button(1)	CAC2811	58	Button Unit	CXA4417
14	Button(2)	CAC2812	59	Case	CNS2269
15	Button(3)	CAC2813	60	Cap	CNV2680
16	Button(4)	CAC2814	61	DIN Connector Cord	CDE3419
17	Button(5)	CAC2815	62	Connector	CDE3377
18	Button(6)	CAC2816	63	
19	Button(Tune)	CAC2828	64	
20	Button(-)	CAC2817	65	Plug	CKS-783
21	Button(Clear)	CAC2829	66	Plug	CKS1224
22	Button Unit	CXA4132	67	Holder	CNC3579
23	Button(SD)	CAC2826	68	Plug	CKS-785
24	Spring	CBH1390	69	Holder	CNC3581
25	Button	CAC2827	70	Plug	CKS-467
26	Button(Eject)	CAC2823	71	Connector	CDE3171
27	Spring	CBH1388	72	Volume (Fader)	CCS1186
28	Button(REW)	CAC2824	73	Connector	CDE3208
29	Button(FF)	CAC2825	74	Connector	CDE3173
30	Handle	CNC3664	75	Connector	CDE3174
31	Holder	CNC3342	76	Connector	CKS1260
32	Cord	CDE3182	77	Connector	CDE3210
33	Screw	BPZ20P120FZK	78	Connector	CDE3222
34	Grille Cover	CNS2151	79	
35	Lens	CNV2774	80	
36	Cushion	CNM3156	81	Capacitor	CCH1016
⊙ 37	Key Board Unit	CWM2692	82	Spacer	CNW-662
38	Grille Assy	CXA4169	83	
39	Screw	BMZ30P120FMC	84	
40	Heat Sink	CNC3747	85	
41	Knob	CAA1250	86	
42	Screw	CBA1179	87	Screw	BMZ30P050FMC
43	Screw	PMZ20P030FMC	88	Holder	CNC2218
44	Holder Unit	CXA3998	⊙ 89	FM/AM Tuner Unit	CWE1228

Mark No.	Description	Part No.	Mark No.	Description	Part No.
90	Holder	CNC3395	100	Screw	BMZ30P080FMC
91	FM Front End	CWB1035	101	Lamp (Green)	CEL1207
92	Insulator	CNM2105	102	Lamp	CEL1208
93	Antenna Jack	CKX1010	103	Holder	CNV1906
94	Plug	CKS1628	104	Holder	CNV1906
			105	
95	Insulator	CNM2941	106	Insulator	CNM3199
● 96	Tuner Amp Unit	CWM2672			
97	Holder	CNC2913			
98	Antenna Cable	CDH1128			
99	Chassis Unit	CXA4191			

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK
No. Description	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
4 Cassette Mechanism Assy	EXK1735	EXK1735	EXK1765	EXK1765	EXK1735	EXK1735
10 Grille Unit	CXA4142	CXA4144	CXA4143	CXA4241	CXA4145	CXA4133
11 Button	CAC2821	CAC2932	CAC2932	CAC2932	CAC2821	CAC2821
16 Button	CAC2814	CAC2934	CAC2934	CAC2934	CAC2814	CAC2814
17 Button	CAC2815	CAC2935	CAC2935	CAC2935	CAC2815	CAC2815
18 Button	CAC2816	CAC2936	CAC2936	CAC2936	CAC2816	CAC2816
19 Button	CAC2828	CAC2933	CAC2933	CAC2933	CAC2828	CAC2828
32 Cord	CDE3182	CDE3181	CDE3181	CDE3181	CDE3183	CDE3182
● 37 Key Board Unit	CWM2692	CWM2694	CWM2694	CWM2694	CWM2694	CWM2692
38 Grille Assy	CXA4169	CXA4171	CXA4172	CXA4173	CXA4175	CXA4168
45 Panel Unit	CXA4134	CXA4157	CXA4157	CXA4157	CXA4156	CXA4134
60 Cap	CNV2680	CNW-829	CNV2680	CNV2680	CNW-829	CNW-829
62 Connector	CDE3377	CDE3157	CDE3155	CDE3155	CDE3157	CDE3377
63 Connector	----	CDE3156	CDE3154	CDE3154	CDE3156	----
64 Connector	----	----	----	----	CDE3420	----
66 Plug	CKS1224	----	----	----	----	CKS1224
69 Holder	CNC3581	CNC3753	CNC3753	CNC3753	CNC3752	CNC3581
78 Connector	CDE3222	CDE3303	CDE3303	CDE3303	CDE3303	CDE3222
79 Connector	----	----	----	----	----	CDE3170
80 Connector	----	CDE3172	CDE3172	CDE3172	CDE3172	----
83 Plug	----	CKS1238	CKS1238	CKS1238	CKS1238	----
84 Plug	----	CKS-786	CKS-786	CKS-786	CKS-786	----
85 Plug	----	----	----	----	----	CKS1040
86 Holder	----	CNC3577	CNC3577	CNC3577	CNC3577	CNC3577
● 89 FM/AM Tuner Unit	CWE1228	CWE1225	CWE1225	CWE1225	CWE1226	CWE1227
● 96 Tuner Amp Unit	CWM2672	CWM2675	CWM2676	CWM2676	CWM2678	CWM2673
99 Chassis Unit	CXA4191	CXA4191	CXA4191	CXA4191	CXA4191	CXA3851
102 Lamp	CEL1208	CEL1025	CEL1025	CEL1025	CEL1025	CEL1208
105 Cap	----	CNW-829	CNV2680	CNV2680	CNW-829	----

17. KEY BOARD UNIT EXPLODED VIEW

•Parts List (KEH-M7300/EW)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
①	1 Key Board Unit	CWM2692	6	Bush	CNV1859
	2 Lens	CNV2688	7	Bush	CNV1859
	3 Holder	CNV2684	8	Plug	CKS1663
	4 Lamp	CEL1208	9	Holder	CNV2685
	5 Lamp	CEL1207	10	Lens	CNV2686
			11	LCD	CAW1124
			12	Insulator	CNM3051
			13	Holder	CNC3576
			14	Spacer	CNM1642

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK
No. Description	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
① 1 Key Board Unit	CWM2692	CWM2694	CWM2694	CWM2694	CWM2694	CWM2692
4 Lamp	CEL1208	CEL1025	CEL1025	CEL1025	CEL1025	CEL1208

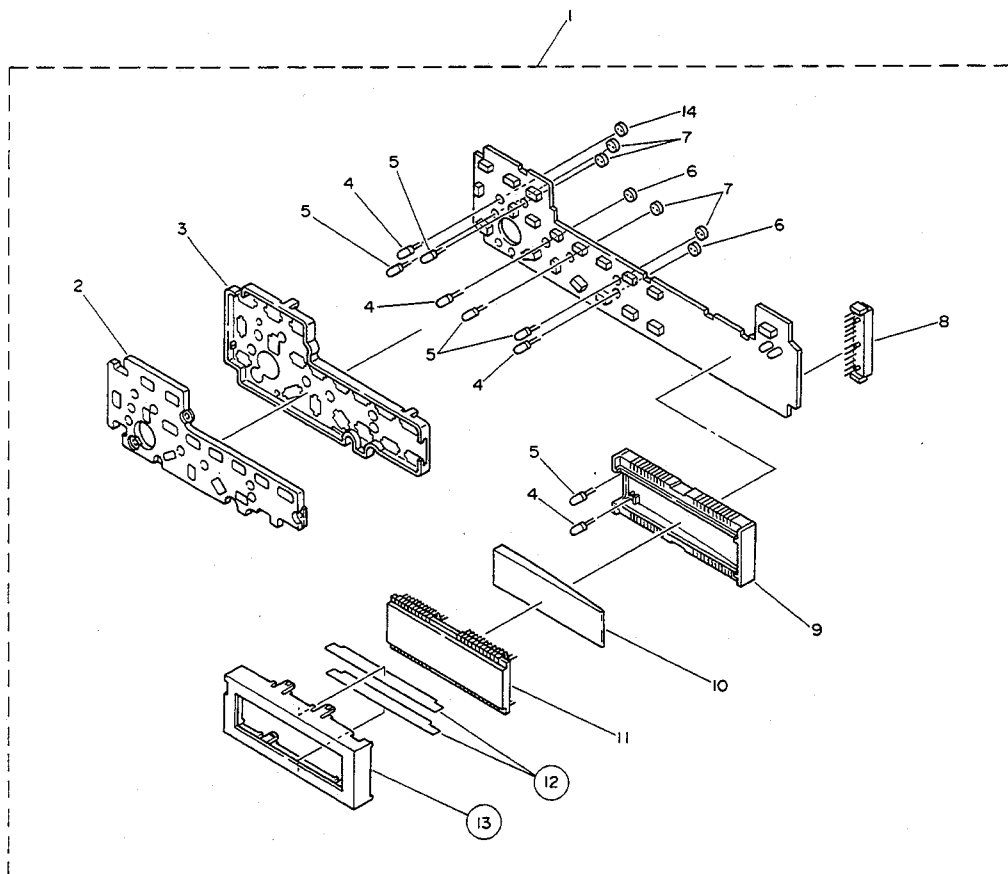


Fig. 21

18. CASSETTE MECHANISM ASSY EXPLODED VIEW

● KEH-M7300/EW, M7300SDK/WG, M7200/US, M7250/ES

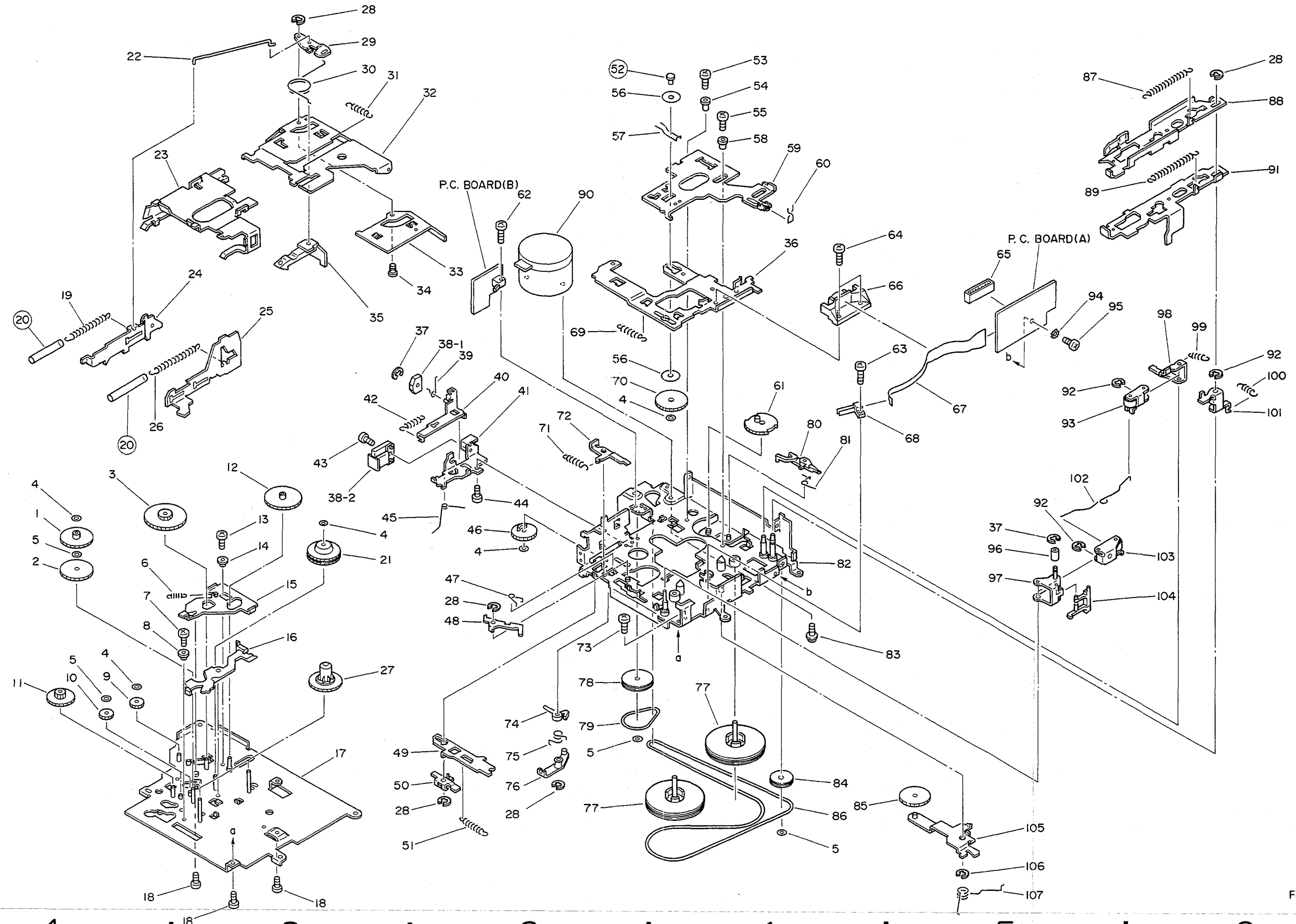


Fig. 22

•Parts List (KEH-M7300/EW, M7300SDK/WG, M7300US, M7250/ES)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Gear	ENV1212	46	Gear	ENV1262
2	Gear	ENV1211	47	Spring	EBH1337
3	Gear	ENV1203	48	Arm	ENC1236
4	Washer	CBF1037	49	Lever Unit	EXA1173
5	Washer	CBF1038	50	Arm	ENC1237
6	Spring	EBH1338	51	Spring	EBH1335
7	Screw	JFZ17P035FNI	52	Shaft	
8	Shaft	ELA1259	53	Screw	JFZ20P025FNI
9	Gear	ENV1230	54	Collar	ELA1229
10	Gear	ENV1274	55	Screw	JFZ20P040FNI
11	Gear	ENV1264	56	Washer	EBF1015
12	Gear	ENV1204	57	Spring	EBH1372
13	Screw	JFZ17P018FNI	58	Collar	ELA1220
14	Collar	ELA1244	59	Lever	ENC1269
15	Arm	ENC1241	60	Spring	EBH1361
16	Arm	ENV1261	61	Gear	ENV1205
17	Sub Chassis Unit	EXA1169	62	Screw	CBA1054
18	Screw	BMZ20P025FMC	63	Screw	CBA1038
19	Spring (Black)	EBH1306	64	Screw	CBA1015
20	Tube		65	Plug	CKS1056
21	Gear Unit	EXA1159	66	Head Unit	EXA1163
22	Spring	EBH1308	67	P.C. Board	ENP1042
23	Holder	ENC1205	68	Switch	ESN1005
24	Lever	ENC1243	69	Spring	EBH1334
25	Lever	ENC1235	70	Gear	ENV1208
26	Spring	EBH1307	71	Spring	EBH1333
27	Real Unit	EXA1167	72	Arm	ENC1240
28	Washer	YE15FUC	73	Screw	BSZ20P040FMC
29	Arm	ENC1221	74	Arm	ENV1265
30	Spring	EBH1305	75	Spring	EBH1336
31	Spring	EBH1364	76	Arm Unit	EXA1171
32	Frame	ENC1204	77	Flywheel Unit	EXA1161
33	Arm	ENC1215	78	Gear	ENV1229
34	Shaft	ELA1251	79	Belt	ENT1020
35	Lever	ENV1222	80	Arm	ENV1206
36	Head Base Unit	EXA1203	81	Spring	EBH1317
37	Washer	YE12FUC	82	Chassis Unit	EXA1168
38	Solenoid	EXP1008	83	Screw	PMS26P025FUC
39	Spring	EBH1353	84	Pulley	ENV1207
40	Lever Unit	EXA1172	85	Gear	ENV1209
41	Bracket	ENC1239	86	Belt	ENT1018
42	Spring	EBH1339	87	Spring (Silver)	EBH1322
43	Screw	EBA1023	88	Lever (FF)	ENC1244
44	Screw	BMZ20P025FMC	89	Spring (Brown)	EBH1365
45	Spring	EBH1340	90	Motor Unit	EXA1162

KEH-M7300

Mark No.	Description	Part No.	Mark No.	Description	Part No.
91	Lever (REW)	ENC1245	101	Arm	ENC1264
92	Washer	YE20FUC	102	Spring	EBH1366
93	Pinch Roller Unit	EXA1193	103	Pinch Roller Unit	EXA1194
94	Washer	WH23FMC	104	Arm	ENV1227
95	Screw	BSZ23P040FMC	105	Arm Unit	EXA1155
96	Roller	ELA1247	106	Washer	YE30FUC
97	Arm Unit	EXA1166	107	Spring	EBH1310
98	Arm	ENC1266			
99	Spring	EBH1312			
100	Spring	EBH1311			

•KEH-M550/US, M7250/CA

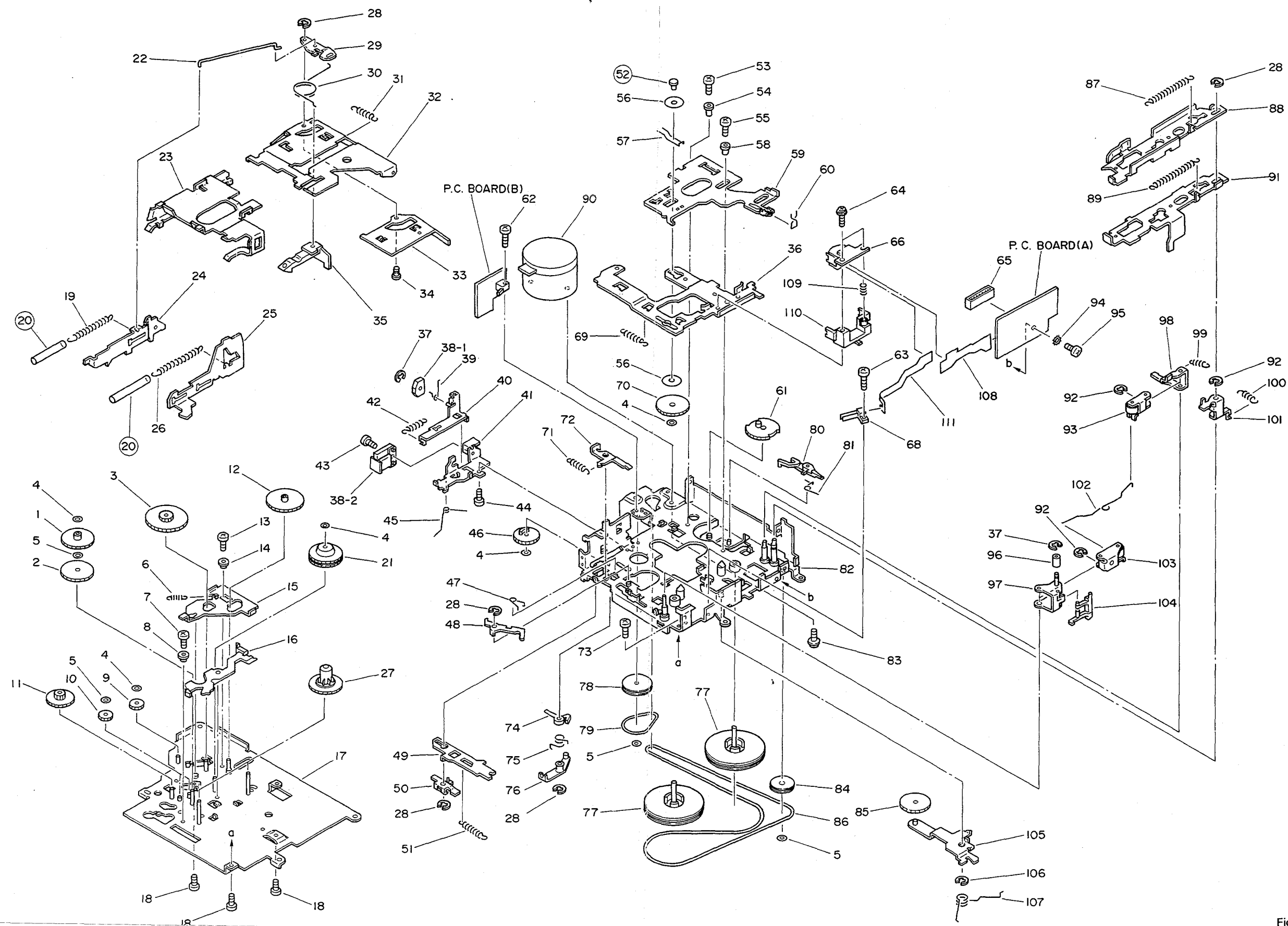


Fig. 23

•Parts List (KEH-M550/US, M7250/CA)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Gear	ENV1212	46	Gear	ENV1262
2	Gear	ENV1211	47	Spring	EBH1337
3	Gear	ENV1203	48	Arm	ENC1236
4	Washer	CBF1037	49	Lever Unit	EXA1173
5	Washer	CBF1038	50	Arm	ENC1237
6	Spring	EBH1338	51	Spring	EBH1335
7	Screw	JFZ17P035FNI	52	Shaft	
8	Shaft	ELA1259	53	Screw	JFZ20P025FNI
9	Gear	ENV1230	54	Collar	ELA1229
10	Gear	ENV1274	55	Screw	JFZ20P040FNI
11	Gear	ENV1264	56	Washer	EBF1015
12	Gear	ENV1204	57	Spring	EBH1372
13	Screw	JFZ17P018FNI	58	Collar	ELA1220
14	Collar	ELA1244	59	Lever	ENC1269
15	Arm	ENC1241	60	Spring	EBH1361
16	Arm	ENV1261	61	Gear	ENV1205
17	Sub Chassis Unit	EXA1169	62	Screw	CBA1054
18	Screw	BMZ20P025FMC	63	Screw	CBA1038
19	Spring (Black)	EBH1306	64	Screw	EBA1024
20	Tube		65	Plug	CKS1056
21	Gear Unit	EXA1159	66	Head	EPB1015
22	Spring	EBH1308	67	P. C. Board	ENP1043
23	Holder	ENC1205	68	Switch	ESN1005
24	Lever	ENC1243	69	Spring	EBH1334
25	Lever	ENC1235	70	Gear	ENV1208
26	Spring	EBH1307	71	Spring	EBH1333
27	Real Unit	EXA1167	72	Arm	ENC1240
28	Washer	YE15FUC	73	Screw	BSZ20P040FMC
29	Arm	ENC1221	74	Arm	ENV1265
30	Spring	EBH1305	75	Spring	EBH1336
31	Spring	EBH1364	76	Arm Unit	EXA1171
32	Frame	ENC1204	77	Flywheel Unit	EXA1161
33	Arm	ENC1215	78	Gear	ENV1229
34	Shaft	ELA1251	79	Belt	ENT1020
35	Lever	ENV1222	80	Arm	ENV1206
36	Head Base Unit	EXA1203	81	Spring	EBH1317
37	Washer	YE12FUC	82	Chassis Unit	EXA1168
38	Solenoid	EXP1008	83	Screw	PMS26P025FUC
39	Spring	EBH1353	84	Pulley	ENV1207
40	Lever Unit	EXA1172	85	Gear	ENV1209
41	Bracket	ENC1239	86	Belt	ENT1018
42	Spring	EBH1339	87	Spring (Silver)	EBH1322
43	Screw	EBA1023	88	Lever (FF)	ENC1244
44	Screw	BMZ20P025FMC	89	Spring (Brown)	EBH1365
45	Spring	EBH1340	90	Motor Unit	EXA1162

Mark No.	Description	Part No.	Mark No.	Description	Part No.
91	Lever (REW)	ENC1245	101	Arm	ENC1264
92	Washer	YE20FUC	102	Spring	EBH1366
93	Pinch Roller Unit	EXA1193	103	Pinch Roller Unit	EXA1194
94	Washer	WH23FMC	104	Arm	ENV1227
95	Screw	BSZ23P040FMC	105	Arm Unit	EXA1155
96	Roller	ELA1247	106	Washer	YE30FUC
97	Arm Unit	EXA1166	107	Spring	EBH1310
98	Arm	ENC1266	108	P. C. Board	ENP1043
99	Spring	EBH1312	109	Spring	EBH1065
100	Spring	EBH1311	110	Guide	ENV1270
			111	P. C. Board	ENP1044

19. PACKING METHOD

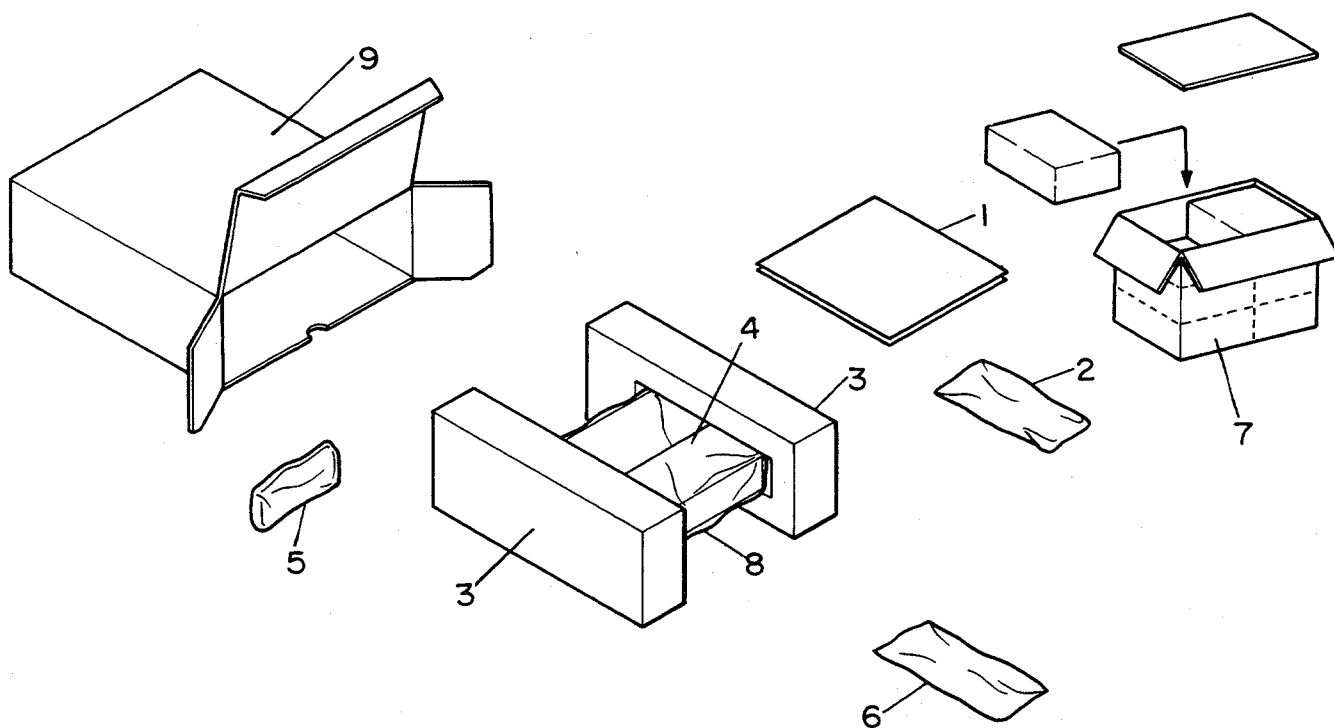


Fig. 24

•Parts List (KEH-M7300/EW)

* :Non spare part

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1-1	Owner's Manual	CRD1478	6-2	Screw(×1)	CBA1002
1-2	Owner's Manual	CRD1489	6-3	Cord	CDE1289
1-3	Installation Manual	CRD1491	6-4	Handle(×2)	CNC3664
* 1-4	Card	CRY-062	6-5	Strap	CNF-111
2	Cord	CDE3182	6-6	Bush	CNV1009
3	Styrofoam	CHP1405	6-7	Nut(×2)	NF50FMC
* 4	Holder	CNC3342	* 7	Contain Box	CHL1986
5	Case	CNS2269	8	Cover	CEG1092
6	Accessory Assy	CEA1633	9	Carton	CHG1986
6-1	Screw(×1)	CBA-102			

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK
No. Description	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1-1 Owner's Manual	CRD1478	CRD1487	CRB1216	CRD1480	CRD1481	CRD1479
1-2 Owner's Manual	CRD1489	----	----	----	----	----
1-3 Installation Manual	CRD1491	----	----	----	----	----
* 1-4 Card	CRY-062	ARY1008	ARY1008	ARY1008	----	CRY-062
2 Cord	CDE3182	CDE3181	CDE3181	CDE3181	CDE3183	CDE3182
7 Contain Box	CHL1986	CHL1989	CHL1991	CHL1990	CHL1988	CHL1987
9 Carton	*CHG1986	CHG1989	CHG1991	*CHG1990	*CHG1988	*CHG1987

Owner's Manual

Part No.	Model	Language
CRD1478	KEH-M7300/EW	English, French, German, Spanish, Portuguese
CRD1489	KEH-M7300/EW	Swedish, Norwegian, Dutch, Italian, Finnish
CRD1487	KEH-M7200/US	English, French
CRB1216	KEH-M550/US	English
CRD1480	KEH-M7250/CA	English, French
CRD1481	KEH-M7250/ES	English, French, Spanish, Arabic
CRD1479	KEH-M7300SDK	French, German

20. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :

Unit Name : FM/AM Tuner Unit (KEH-M7300SDK/WG)

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
IC	51				PA4012B	R	60			RS1/10S473J	
IC	201				PA4017	R	61	105		RS1/10S332J	
Q	1			Chip Transistor	2SB709	R	64			RS1/10S222J	
Q	2			Chip Transistor	DTC124EK	R	102			RS1/10S822J	
Q	51			Chip Transistor	DTA114TK-94	R	106			RS1/10S333J	
Q	201				2SK435	R	107			RS1/10S102J	
Q	202				2SC2412K	R	108			RS1/10S104J	
Q	203	205		Chip Transistor	DTC124EK	R	111			RS1/10S123J	
D	201	204		Chip Diode	MA157-MR	R	112			RS1/10S684J	
D	205				SVC203-M1	R	151	152 153		RS1/10S222J	
L	1	51		Inductor	CTF1241	R	201			RS1/10S220J	
L	2			Inductor	CTF1086	R	202			RS1/10S681J	
L	101			Inductor	CTF1126	R	203	206 214		RS1/10S222J	
L	201			Inductor	CTF1084	R	204	213		RS1/10S473J	
L	203			Ferri-Inductor	LAU220K	R	205	209		RS1/10S470J	
L	204			Ferri-Inductor	LAU470K	R	207			RS1/10S822J	
L	205			Ferri-Inductor	LAU47K	R	208	211 212		RS1/10S103J	
T	51			Coil	CTE1021	R	210			RS1/10S682J	
T	52			Coil	CTE1022	R	215			RS1/10S153J	
T	201			Coil	CTB1020						
T	202			Coil	CTB1004						
T	203			Coil	CTB1040						
T	204			Coil	CTE1037						
T	205			Coil	CTE1038						
T	206			Coil	CTE1039						
CG	1				DSP-201M-S008						
CF	51	52		Ceramic Filter	CTF-182						
CF	201			Ceramic Filter	CTF1041						
CF	202			Filter	CTF1085						
X	151			Ceramic Resonator	CSS1055						
X	201			Crystal Resonator	CSS1014						
VR	1			Semi-fixed	CCP1019						
VR	51	101 102		Semi-fixed 33kΩ (B)	VRTB4VS333						
				FM Front End	CWB1035						

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	1				CKSQYB102K50
C	2	3 104			CKSQYB103K50
C	4	59			CKSQYF473Z25
C	51				CKSQYF473Z25
C	52	53			CKSQYB223K25
C	54				CQSQSL101J50
C	55				CKSQYB102K50
C	56				CKSQYF104Z25
C	57				CSZAR33K35
C	58				CQSQCH060D50
C	60				CEALHP100M6R3
C	101				CKSQYB822K50
C	102				CKSQYB682K50
C	103				CKSQYB392K50
C	105				CEA2R2M50LL
C	106				CEA220M6R3LL
C	107	108			CKSQYB222K50
C	110				CEA010M50LL
C	111				CEA100M16LL
C	112				CEA01M50LL
C	151	152			CKSQYB273K25
C	153				CSZAR47M35L
C	154	155 156			CEA3R3M50LL
C	157				CEA101M10LS
C	201	223 228			CKSQYB103K25

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	2	7			RS1/10S223J
R	3				RS1/10S124J
R	4				RS1/10S682J
R	5	13 63			RS1/10S0R0J
R	6	59 101			RS1/10S331J
R	10				RS1/10S560J
R	15				RS1/10S0R0J
R	54				RS1/10S472J
R	56	58 104			RS1/10S393J
R	57				RS1/10S562J

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	202	212			CKSQY8332K50	D	553	907		HZS9R1J82	
C	203	215 216 219 226			CKSQYF473Z25	D	908			ERA15-02VH	
C	204	208 210			CKSQYB223K25	D	951			HZS5R6JB2	
C	205				CCSQCH220J50	D	952			HZS7R5JB2	
C	206	207			CCSQCH820J50	D	953	958 959		ERA15-02VH	
C	211				CEA2R2M50LL	D	954			HZS6R8JB2	
C	213				CCSQCH390J50	D	957			ERC04-02F	
C	217				CEA100M16LL	L	501		Ferri-Inductor	LAU2R2M	
C	218				CEA2R2M35NPLL	L	952		Ferri-Inductor	LAU330K	
C	220				CCSQCH430J50	LB	501			CWW1302	
C	221				CCSQCH100D50	LB	505			CWW1240	
C	222				CSZA010K35L	LB	951			CWW1301	
C	224				CEA470M16LL	LB	952			CWW1128	
C	225				CKSQY8333K25	LB	953			CWW1292	
C	227				CEA4R7M35LS	LB	954			CWW1291	
C	229				CEA470M16LS	X	501		Crystal Resonator	CSS1011	
C	230				CEA220M16LL	X	701		Ceramic Resonator	CSS1019	
						VR	351 352		Semi-fixed 33k Ω (B)	VRTB6VS333	
						S	2		Switch(Clear)	CSG1012	
						IL	951		Lamp (Green)	CEL1207	
						IL	952		Lamp (Orange)	CEL1208	
						VR	1		Volume (Fader)	CCS1186	
						EF	953 954 955		EMI filter	CCG1003	
						BZ	902		Buzzer	CPV1013	

Unit Number :

Unit Name : Tuner Amp Unit (KEH-M7300SDK/WG)

Tuner Amp Unit

Consists of

- Tuner Amp P. C. Board
- SDK P. C. Board

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
IC	350				TA8162SN
IC	351				CXA1102P
IC	352				AW6263N
IC	451				KHA272
IC	501				TA8215H-A
IC	502				PD4302
IC	701				KHAC02
IC	951				TA8214K
Q	350 457 458 502 506 950 958 959 962 975				DTC114TS
Q	351 352 551 552 807 808				DTC314TS
Q	451 452 453 454				DTC114TS
Q	455 509				DTA114TS
Q	456 800				DTA114ES
Q	501 504 703 963 969				2SC2458
Q	503				2SC2498
Q	505				2SK330
Q	510				2SC3113
Q	550 553 976				DTC114YS
Q	554 805 806 966				2SA1048
Q	701				DTB123YS
Q	702				DTC114WS
Q	801 802				2SC2458
Q	917				2SD2037
Q	918 978 980			Chip Transistor	DTC114TK
Q	951 952 953				DTB123YS
Q	954				DTC114TS
Q	955 956				DTC314TS
Q	957 961 964				DTA143ZS
Q	960 977 979				2SB1243
Q	965				DTC114TS
Q	974				2SB772
D	350 440 504 505 506 507 511				1SS133
D	450				1S1555
D	451 452 453 454 501 502 550 551 552				1SS133
D	503 700				HZS3R0E82

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	351 352				RS1/10S104J
R	353 354				RS1/10S133J
R	355 356				RS1/10S183J
R	357 358				RS1/10S334J
R	359 360				RS1/10S181J
R	361 362 502 522				RS1/10S222J
R	363 364				RS1/10S822J
R	366 501 504 955 957 958				RS1/10S103J
R	367 537 954				RS1/10S473J
R	368 702				RS1/10S684J
R	369				RD1/4PS154JL
R	370				RS1/10S154J
R	371 372				RS1/10S473J
R	373 515 519 956				RS1/10S101J
R	375				RS1/10S0R0J
R	376 543 544 545 546 549 601 602 821				RS1/10S0R0J
R	379				RS1/10S0R0J
R	380 381 822 873				RS1/10S0R0J
R	382 383 384 614 615 616 988 989 990				RS1/8S0R0J
R	385 386 486 618 992				RS1/8S0R0J
R	389 824 993				RS1/8S0R0J
R	390				RS1/8S0R0J
R	392				RS1/10S104J
R	393				RS1/8S0R0J
R	451 452 509 961				RD1/4PS473JL
R	453 454				RS1/10S102J
R	455 456 524 527 529 805 806				RS1/10S473J
R	457				RS1/8S223J
R	458				RD1/4PM223J
R	459 460				RS1/10S563J
R	461 462				RS1/10S333J
R	469 470 475 476 541 542 547				RS1/10S0R0J
R	473 474				RS1/10S183J
R	479 483 605 987				RS1/10S0R0J
R	480 482				RS1/10S0R0J

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	485	606 607 608 610 611 613			RS1/8S0R0J	C	369	964			CKSQYB103K50
R	487	520 521 815 816 920 985 986			RS1/10S102J	C	370				CCSQCH330J50
R	503	563 819 820 970			RS1/10S223J	C	372	563			CEA0R1M50LS2
R	505	801 802			RS1/10S221J	C	383	384	4.7 μ F/35V		CCH1016
R	506				RD1/4PS222JL	C	455	953			CEA470M16L2
R	507				RD1/4PS392JL	C	456				CEA100M16LS2
R	508				RS1/10S823J	C	500				CASAQ4R7M10
R	510	516			RS1/10S472J	C	501				CCG1008
R	511	534			RS1/8S104J	C	502	504 505 507 520 702			CKPY103M16L
R	512				RD1/4PM102J	C	509	526			CKSYB102K50
R	513				RS1/10S152J	C	511				CKPYB101K50L
R	514				RS1/10S182J	C	512				CKSYB681K50
R	517				RS1/10S331J	C	513				CCSQCH101J50
R	518				RS1/10S821J	C	515		4.7 μ F/16V		CCH1005
R	523	564 703 921 973			RS1/10S222J	C	516				CEAR47M50LS2
R	525				RS1/10S474J	C	517		1000 μ F/6.3V		CCH1112
R	526				RD1/4PM102J	C	518				CCSQCH100D50
R	530	531			RS1/10S681J	C	525				CCSQCH090D50
R	532	533			RS1/8S681J	C	527				CKSQYF104Z25
R	538				RS1/10S563J	C	528				CKSQYB473K25
R	539				RS1/10S0R0J	C	550				CEA101M10L2
R	540				RS1/10S104J	C	551	552			CEHAS4R7M35
R	548				RS1/10S102J	C	553	554 805 806 962			CKSQYB102K50
R	550				RS1/10S391J	C	556				CEHAQ101M10
R	553				RD1/4PS392JL	C	557	558			CEHAQ470M25
R	554				RD1/4PM392J	C	559	561 562			CQEA224J63
R	555	556			RD1/4PS471JL	C	560				CQEA224J63
R	557	558 559 560			RD1/4PS47JL	C	564				CEA472M16L2
R	561	562			RS1/10S152J	C	600				CASAQ100M10
R	701				RS1/8S473J	C	703				CQMA683J50LL
R	800				RS1/10S470J	C	704				CEAR33M50LS2
R	803	804			RS1/10S223J	C	800				CEA221M10L2
R	807	808 817 818			RS1/10S471J	C	801	802 807 808			CEA4R7M35LS
R	809	810			RS1/10S681J	C	803	804			CEALNP100M16
R	811	812			RS1/10S133J	C	913				CEA220M16LS
R	813	814			RS1/10S472J	C	951		470 μ F/10V		CCH1019
R	922				RS1/8S472J	C	952	963			CKSQYB473K25
R	923				RS1/10S472J	C	956				CCG1008
R	950				RS1/8S0R0J	C	961				CEA2R2M50LS2
R	951				RS1/8S681J						
R	952	971 976			RD1/2PS681JL	Unit Number :					
R	953				RS1/8S223J	Unit Name : Key Board Unit(KEH-M7300SDK/WG)					
R	959	965			RS1/10S102J						
R	960	977 978 979 980 981			RS1/8S103J	MISCELLANEOUS					
R	969				RS1/10S1R0J	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	974				RD1/4PS152JL	IC	901			S-80740AH	
R	975				RS1/8S223J	IC	902			PD4285	
R	999				RD1/4PM104J	IC	903			LC7582A	
						D	901 902 903 904 905	Chip Diode		DCC010	
						L	901	Ferri-Inductor		LAU101K	
						X	901	Ceramic Resonator		CSS1050	
								LCD		CAW1124	
						IL	902 904 905 906 907 912	Lamp(Green)		CEL1207	
						IL	908 909 910 911 913	Lamp(Orange)		CEL1208	
						S	901 902 903 904 905 906 907 908 909 910	CSG-253		CSG-253	
							911 912 913 914 915 916 917 918 919	Switch			

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	350	371			CEA101M10LS
C	351	352			CCSQCH681J50
C	353	354 363 701 705 914 954 957			CEA470M16LS
C	355	356 510 514			CKSQYB103K50
C	357	361 362 955 958			CEA100M16LS2
C	358	380 381 451 452 453 454 457 458 706			CEA4R7M35LS
C	359	360			CEA010M50LS2
C	364	555			CKSQYF104Z25
C	365				CEA101M10LS
C	367	368			CEAR68M50LS2

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	901	902 903 904 905			RS1/8S103J
R	906				RS1/10S104J
R	907				RS1/10S473J
R	908				RS1/10S103J
R	909	910 911 912 913 914 915 916 917 918			RS1/10S471J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	901				CEA470M6R3LS
C	902				CKSQYF473Z25
C	903				CCSQCH331J50
C	904	905			CKSQYB103K50
C	906	907			CCSQCH221J50
C	908	909 910 911 912			CKSQYB152K50

Unit Number :
Unit Name : P.C. Board(A)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
S	2			Switch(FWD/REV)	ESH1003

Unit Number :
Unit Name : P.C. Board(B)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
D	1				F1SR35-100A
S	3			Switch(Tape/Tun)	ESH1004
SO	1			Solenoid	EXP1008

Miscellaneous Parts List(KEH-M7300SDK/W6)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
HD	1			Head Unit	EXA1163
M	1			Motor Unit	EXA1162

Tuner Amp Unit

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK/WG
TC501	----	CCG-070	CCG-070	CCG-070	CCG-070	----
IL952	CEL1208	CEL1025	CEL1025	CEL1025	CEL1025	CEL1208
IC502	PD4302	PD4343A	PD4343A	PD4343A	PD4343A	PD4302
IC701	----	----	----	----	----	KHA142
Q453, 454	----	----	----	----	----	DTC114TS
Q459, 460	----	----	----	----	DTC114TS	----
Q506	DTC114TS	----	----	----	----	DTC114TS
Q701	----	----	----	----	----	DTB123YS
Q702	----	----	----	----	----	DTC114WS
Q703	----	----	----	----	----	2SC2458
Q850	----	DTA114ES	DTA114ES	DTA114ES	DTA114ES	----
Q851, 852	----	2SC2458	2SC2458	2SC2458	2SC2458	----
Q853, 854	----	2SA1048	2SA1048	2SA1048	2SA1048	----
Q855, 856	----	DTC314TS	DTC314TS	DTC314TS	DTC314TS	----
Q917	----	----	----	----	----	2SD2037
Q971, 973	----	----	----	----	DTC144TS	----
Q972	----	----	----	----	DTA144ES	----
D508	----	1SS133	1SS133	1SS133	----	----
D509	----	----	----	----	1SS133	----
D511	----	----	----	----	----	1SS133
D700	----	----	----	----	----	HZS3R0EB2
D907	----	----	----	----	----	HZS9R1JB2
X701	----	----	----	----	----	CSS1019
R351, 352	RS1/10S104J	RS1/10S104J	RS1/10S223J	RS1/10S223J	RS1/10S104J	RS1/10S104J
R463, 464	----	----	----	----	RS1/10S303J	----
R465, 466	----	----	----	----	RS1/10S683J	----
R503, 970	----	----	----	----	RS1/10S223J	----
R570, 967, 968	----	----	----	----	RS1/10S222J	----
R571	----	----	----	----	RS1/10S473J	----
R606, 610, 611, 992	----	----	----	----	----	RS1/8S0R0J
R612, 619, 620	----	----	----	----	RS1/8S0R0J	----
R615	RS1/8S0R0J	----	----	----	----	RS1/8S0R0J
R701	----	----	----	----	----	RS1/8S473J
R702	----	----	----	----	----	RS1/10S684J
R703	----	----	----	----	----	RS1/10S222J
R850	----	RS1/10S470J	RS1/10S470J	RS1/10S470J	RS1/10S470J	----
R851, 852	----	RS1/10S221J	RS1/10S221J	RS1/10S221J	RS1/10S221J	----
R853, 854, 869, 870	----	RS1/10S223J	RS1/10S223J	RS1/10S223J	RS1/10S223J	----
R855, 856	----	RS1/10S473J	RS1/10S473J	RS1/10S473J	RS1/10S473J	----
R857, 858, 867, 868	----	RS1/10S471J	RS1/10S471J	RS1/10S471J	RS1/10S471J	----
R859, 860	----	RS1/10S681J	RS1/10S681J	RS1/10S681J	RS1/10S681J	----
R861, 862	----	RS1/10S133J	RS1/10S133J	RS1/10S133J	RS1/10S133J	----
R863, 864	----	RS1/10S472J	RS1/10S472J	RS1/10S472J	RS1/10S472J	----
R865, 866	----	RS1/10S102J	RS1/10S102J	RS1/10S102J	RS1/10S102J	----
R923	----	----	----	----	RS1/10S472J	RS1/10S472J

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK/WG
R991	----	RS1/8S0R0J	RS1/8S0R0J	RS1/8S0R0J	RS1/8S0R0J	----
R998	----	RD1/4PS222JL	RD1/4PS222JL	RD1/4PS222JL	----	----
C351, 352	CCSQCH681J50	CCSQCH681J50	CCSQCH331J50	CCSQCH331J50	CCSQCH681J50	CCSQCH681J50
C516	CEAR47M50LS2	----	----	----	----	CEAR47M50LS2
C525	CCSQCH090D50	----	----	----	----	CCSQCH090D50
C529	----	----	----	----	CKSQYF104Z25	----
C701, 705, 914	----	----	----	----	----	CEA470M16LS
C702	----	----	-----	-----	----	CKPYY103M16L
C703	----	----	----	----	----	CQMA683J50LL
C704	----	----	----	----	----	CEAR33M50LS2
C706	----	----	----	----	----	CEA4R7M35LS
C850	----	CEA221M10L2	CEA221M10L2	CEA221M10L2	CEA221M10L2	----
C851, 852, 857, 858	----	CEA4R7M35LS	CEA4R7M35LS	CEA4R7M35LS	CEA4R7M35LS	----
C853, 854	----	CEALNP100M16	CEALNP100M16	CEALNP100M16	CEALNP100M16	----
C855, 856	----	CKSQYB102K50	CKSQYB102K50	CKSQYB102K50	CKSQYB102K50	----
C913	----	----	----	----	----	CEA220M16LS

FM/AM Tuner Unit

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK/WG
Q3	----	2SA1162	2SA1162	2SA1162	----	----
Q51	----	----	----	----	----	DTA114TK
D11, 12	----	1SV128A-BB	1SV128A-BB	1SV128A-BB	----	----
VR1	CCP1019	CCP1025	CCP1025	CCP1025	CCP1019	CCP1019
L2	CTF1086	----	----	----	----	CTF1086
L11, 12	----	CTF1065	CTF1065	CTF1065	----	----
L101	CTF1126	CTF1170	CTF1170	CTF1170	CTF1126	CTF1126
L201	CTF1084	CTF1026	CTF1026	CTF1026	CTF1026	CTF1084
R3	RS1/10S124J	RS1/10S683J	RS1/10S683J	RS1/10S683J	RS1/10S124J	RS1/10S124J
R8	----	RS1/10S331J	RS1/10S331J	RS1/10S331J	----	----
R9	----	RS1/10S223J	RS1/10S223J	RS1/10S223J	----	----
R10	RS1/10S560J	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	RS1/10S560J
R11	----	RS1/10S104J	RS1/10S104J	RS1/10S104J	----	----
R12	----	RS1/10S470J	RS1/10S470J	RS1/10S470J	----	----
R13	RS1/10S0R0J	----	----	----	RS1/10S0R0J	RS1/10S0R0J
R14	----	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	----
R58	RS1/10S393J	RS1/10S223J	RS1/10S223J	RS1/10S223J	RS1/10S393J	RS1/10S393J
R60	----	----	----	----	----	RS1/10S473J
R61	RS1/10S332J	----	----	----	----	RS1/10S332J
R101	RS1/10S331J	RS1/10S471J	RS1/10S471J	RS1/10S471J	RS1/10S471J	RS1/10S331J
R151, 152	RS1/10S222J	RS1/10S152J	RS1/10S152J	RS1/10S152J	RS1/10S152J	RS1/10S222J
C11, 12, 13, 14	----	CCSQCH220J50	CCSQCH220J50	CCSQCH220J50	----	----
C15	----	CKSQYB223K25	CKSQYB223K25	CKSQYB223K25	----	----
C57	CSZAR33K35	CEAR68M50LS2	CEAR68M50LS2	CEAR68M50LS2	CSZAR33K35	CSZAR33K35
C101	CKSQYB822K50	CKSQYB392K50	CKSQYB392K50	CKSQYB392K50	CKSQYB392K50	CKSQYB822K50
C151, 152	CKSQYB273K25	CKSQYB563K25	CKSQYB563K25	CKSQYB563K25	CKSQYB563K25	CKSQYB273K25

Key Board Unit

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK/WG
IL908-911, 913	CEL1208	CEL1025	CEL1025	CEL1025	CEL1025	CEL1208

Miscellaneous Parts List

	M7300/EW	M7200/US	M550/US	M7250/CA	M7250/ES	M7300SDK/WG
HD1	EXA1163	EXA1163	EPB1015	EPB1015	EXA1163	EXA1163



Service Manual

PIONEER
The Art of Entertainment

ORDER NO.
CRT1328

CASSETTE MECHANISM ASSEMBLY

CX-197

NOTE

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.

Model	Service Manual	Cassette Mechanism Assembly
KE-1700B/IT KE-1700SDK/WG KE-1730B/EW KE-2700B/IT KE-2700SDK/WG KE-2730B/EW	CRT1325	EXK1710
KE-1700QR/UC KE-2303QR/UC KE-2750QR/ES	CRT1327	EXK1710
KE-2033/UC KE-2033/XSG/UC KE-2828/XSG/UC KE-2828/ES, UC	CRT1331	EXK1710
KE-3838/UC, ES KE-3838/XSG/UC KE-3838/XML/UC	CRT1332	EXK1710
KE-1700B/XML/IT	CRT1336	EXK1710
KE-1730B/XIB KE-1730B/XML/EW KE-1730B/XSG/EW	CRT1337	EXK1710
KE-2630B/XIB KE-2730B/XIB	CRT1340	EXK1710

Model	Service Manual	Cassette Mechanism Assembly
KE-1700QR/XML/UC	CRT1339	EXK1710
KE-3700SDK/WG KE-3730B/EW KE-3700B/IT	CRT1326	EXK1720
KE-2700QR/UC KE-3700QR/UC KE-3750QR/ES	CRT1327	EXK1720
KE-4848/ES, UC KE-4848/XML/UC KE-4848/XSG/UC	CRT1330	EXK1720
KE-250/US KE-3033/UC KE-3033/XSG/UC	CRT1332	EXK1720
KE-3730B/XIB KE-4500R/US KE-350/US	CRT1338 CRT1327 CRT1330	EXK1720 EXK1750 EXK1750

PIONEER ELECTRONIC CORPORATION

4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada

PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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FT JAN. 1991 Printed in Japan

XQ 103

1. DISASSEMBLY

Note: Always use new washer and E washer at the time of reassembling.

● How to Remove the Belt and Motor

1. Remove screw A fixing the FR lever. (Fig.1)
2. Remove three screws B fixing the sub-chassis unit. Move the unit first in Direction A, then in B direction, and lift it upward for removal. (Fig.2)
3. The belt can now be removed. (Fig.3)
4. Remove two screws C. The motor can be removed. (Fig.3)

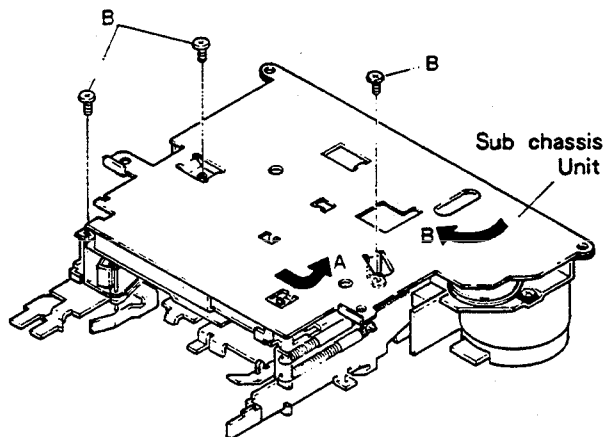


Fig. 2

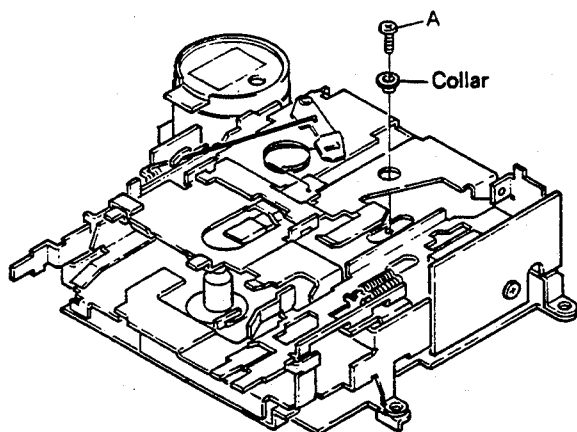


Fig. 1

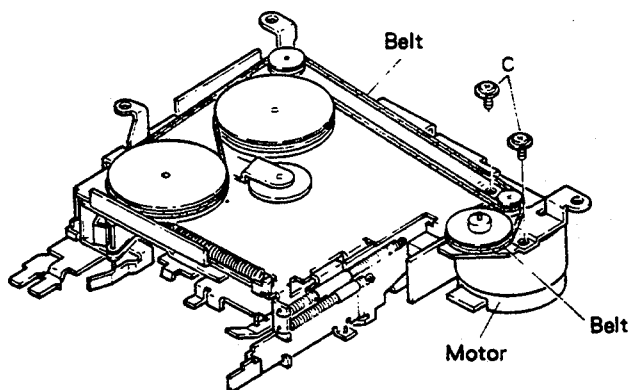


Fig. 3

● How to Remove the Pinch Roller Unit and Head

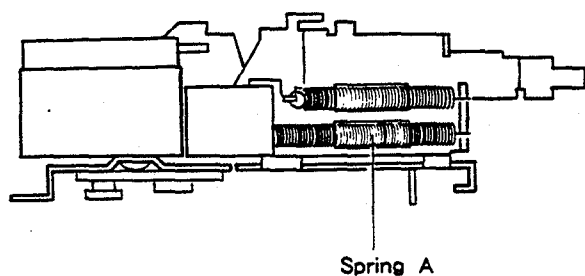


Fig. 4

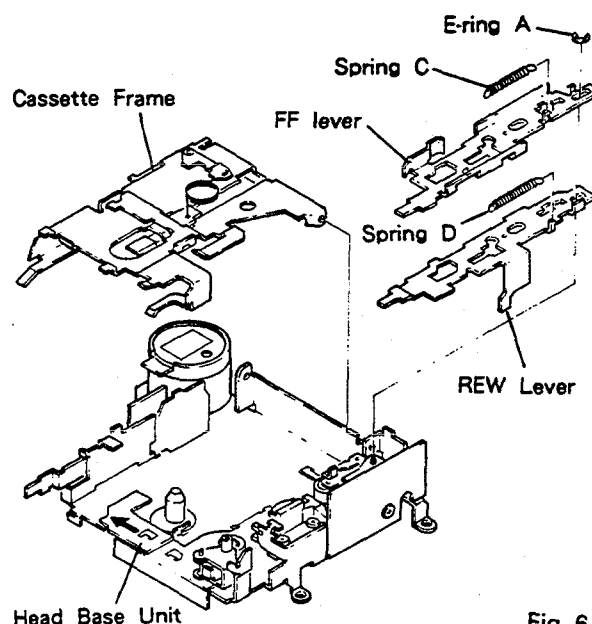


Fig. 6

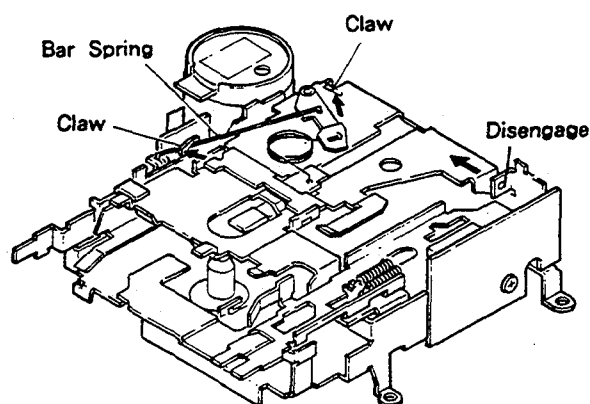


Fig. 5

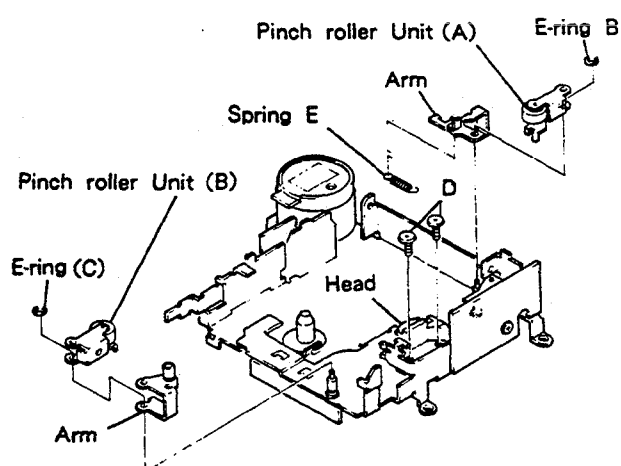


Fig. 7

1. Remove spring A. (Fig.4)
2. Extend claws (2 points). (Fig.5)
3. Remove bar Spring. (Fig.5)
4. Disengage projection by moving in a direction of arrow mark. (Fig.5)
5. The cassette frame is removed. (Fig.6)
6. Remove springs C and D. (Fig.6)
7. Remove E-ring A. (Fig.6)
8. Remove FF/REW levers. (Fig.6)
9. Move head base unit forward. (Fig.6)
10. Remove spring E. (Fig.7)
11. Remove E-ring B. The pinch roller unit (A) can be removed. (Fig.7)
12. Remove E-ring C. The pinch roller unit (B) can be removed. (Fig.7)
13. Remove two screws D. The head can be removed. (Fig.7)

2. ADJUSTMENT

2.1 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation: $3,000^{+90}_{-30}$ Hz $(4.76\text{cm/s}^{+3}_{-1} \%)$</p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>	<p>■ Wow and flutter: Less than 0.2% (WRMS)</p> <p>Using an NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>
<p>■ Fast forward and rewinding time: 100 – 120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque: 35 – 65g · cm</p> <p>Using a cassette type torque meter (100 g·cm), measure the minimum value while in the play mode. Measuring time shall be 2.5 – 6 seconds.</p>	<p>■ F.F. torque: 70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque: 70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque: 2 – 6g · cm</p> <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force: Less than 0.7 kg</p> <p>Push the center of the cassette and measure the force with a tension meter (3 kg).</p>

2.2 AZIMUTH ADJUSTMENT

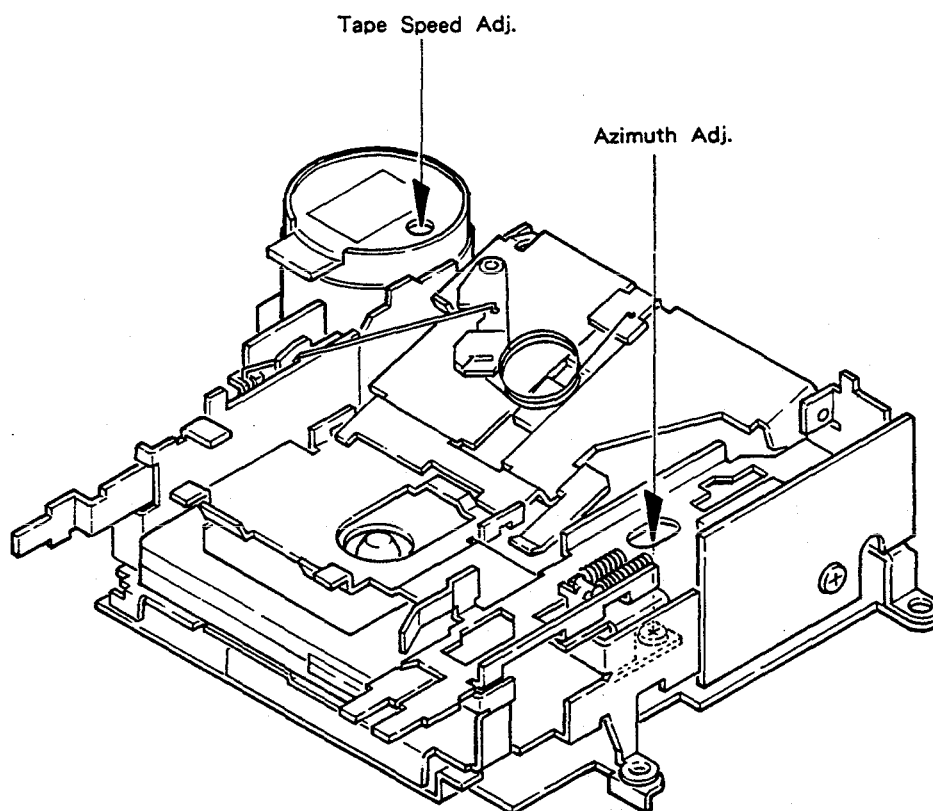


Fig. 8

● To Adjust (EXK1750)

1. Play "A" side of NCT-110 (10kHz, - 10dB). Adjust the screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

2.3 TAPE SPEED ADJUSTMENT

1. Reproduce NCT-111 (3kHz, - 10dB). Adjust the semifixed resistor so that frequency counter shows 3010Hz (+80Hz, - 40Hz).

3. MECHANISM DESCRIPTION

● Loading operation

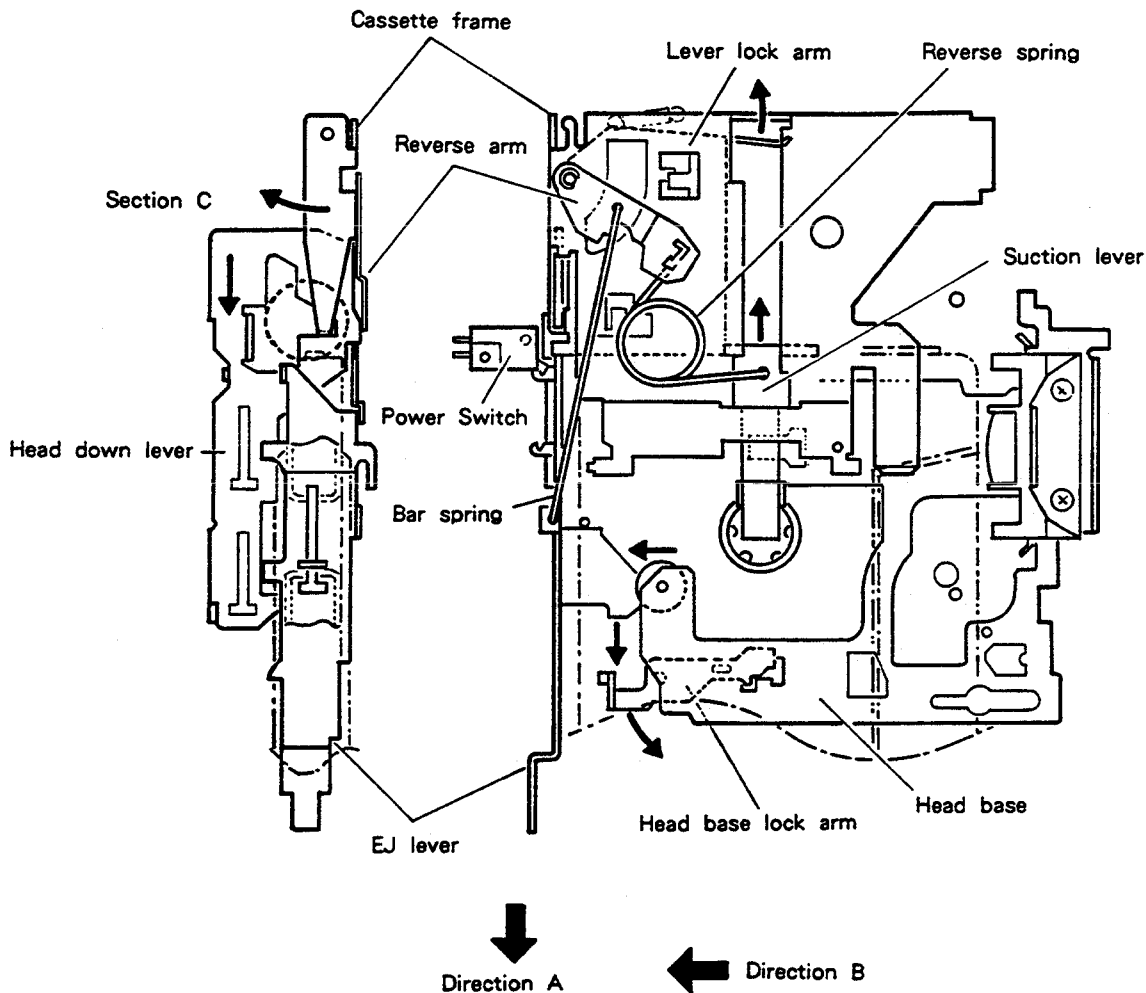


Fig. 9

1. A cassette tape, when inserted, pushes a suction lever.
The reverse spring rotates to move past the reverse point. Then, the cassette is drawn by a force of a reverse spring (suction operation).
2. After suction, the lever lock arm is pressed to be unlocked.
3. The head down lever is unlocked and the lever moves in Direction A.
4. While moving, the EJ lever turns ON the power switch.
5. The cassette frame engaged to the section C of the head down lever turns. (Cassette drop operation)
6. At the stroke end, the head down lever turns the head base lock arm.
7. A Stopper of the head base lock arm is released, and the head base moves forward (Direction B).

● MS Operation (EXK1720, EXK1750)

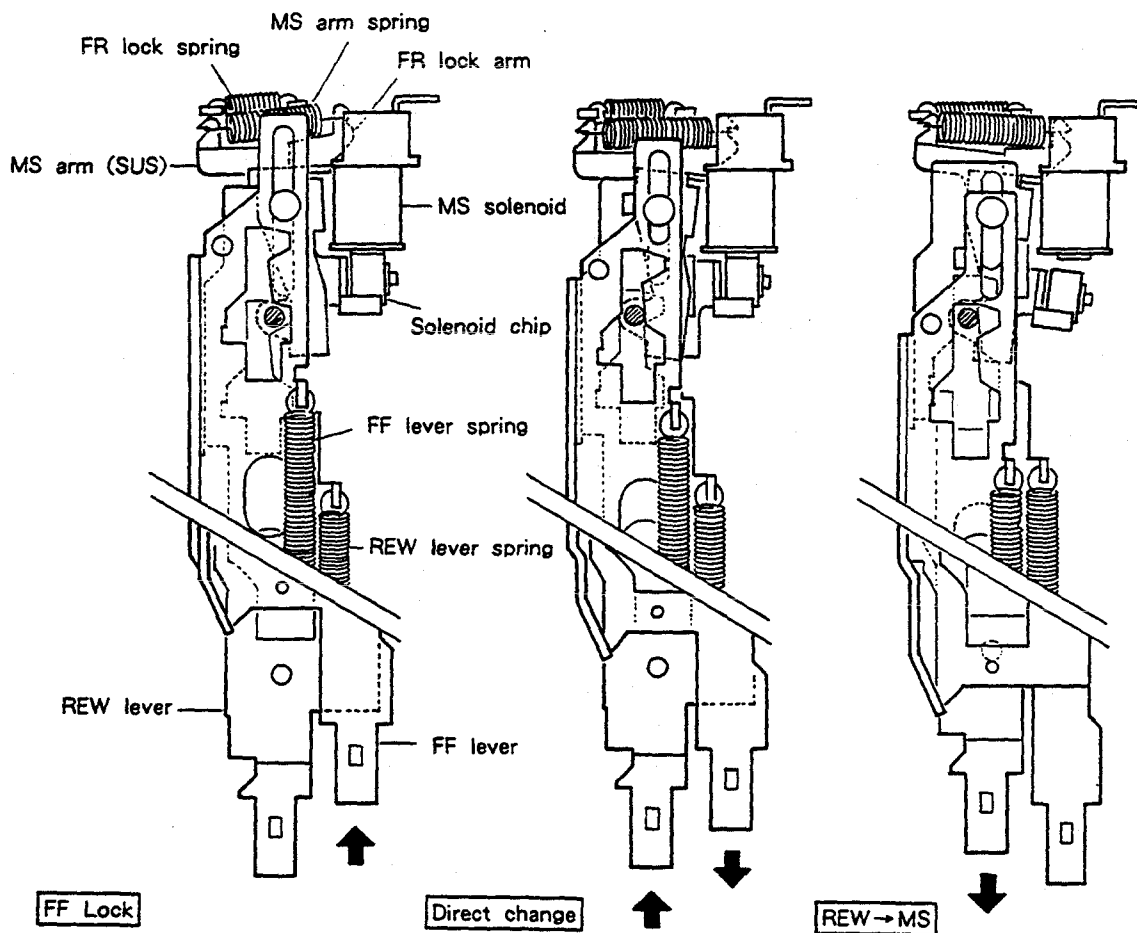


Fig. 10

Fig. 11

Fig. 12

1. The MS solenoid is normally energized to attract the solenoid chip during play and F/R operation. The solenoid chip applies counterclockwise force to the MS arm, thereby putting the FR lock arm into rotation via the MS arm spring. The MS lock shaft of FR lock arm unit catches a taper in a different hole of the FF (or REW) lever to lock the FF (or REW) lever.
2. In case of direct change, pressing the unlocked FF or REW lever causes the lever taper to turn the FR lock arm clockwise. This in turn presses the MS arm spring and FR lock spring to release the locked lever.
3. When the no recording section is caught and the power supply to the solenoid is cut off, the solenoid loses the attraction force and disables locking of the F/R lever. As a result, the F/R lever is unlocked. (This unlocking occurs because the force to retain the lever cannot be generated by the FR lock spring only.)

● Direction Changeover Operation

(1) FWD play operation

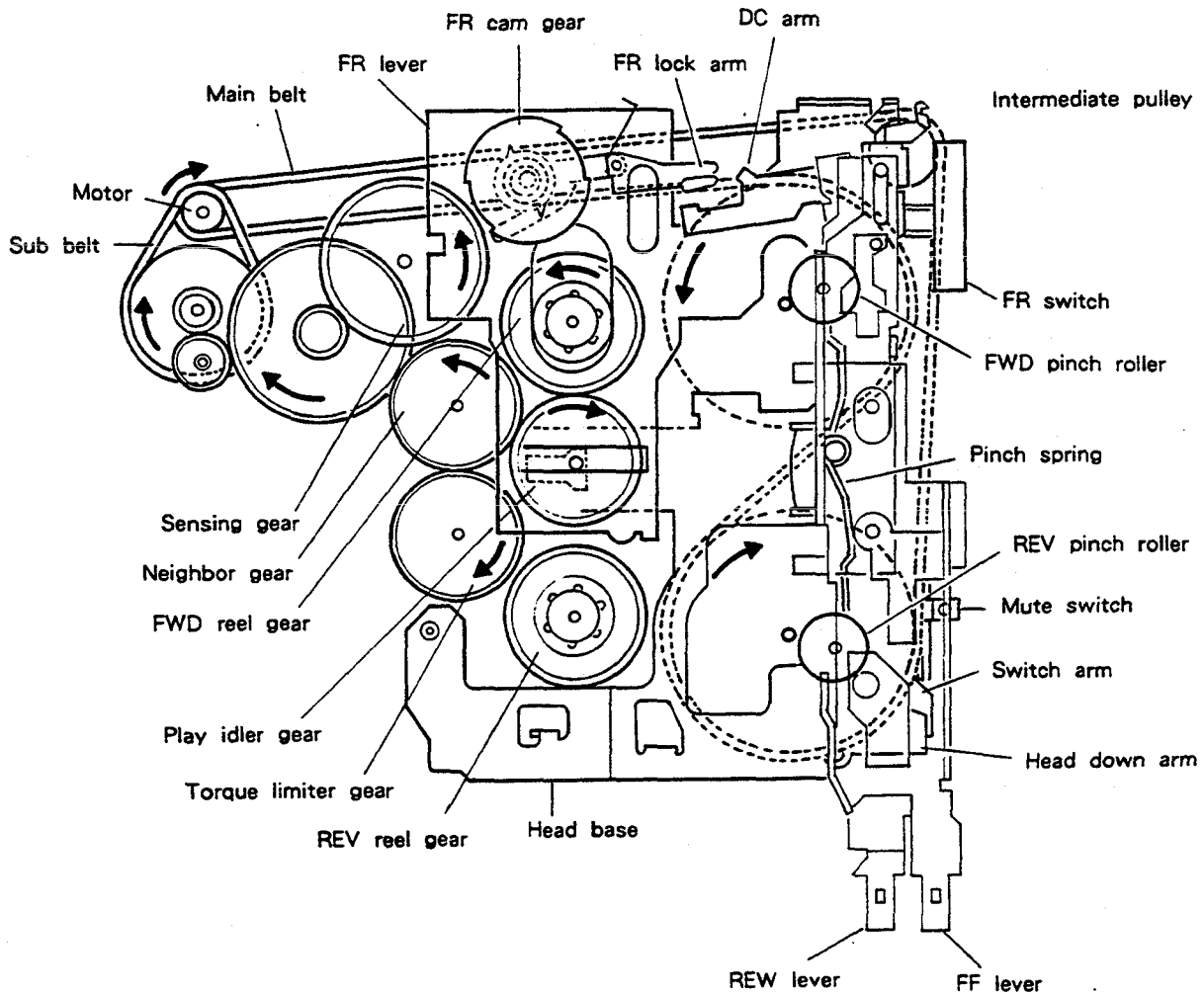


Fig. 13

When the FR lever is in the top position, the pinch spring is in the upper position to press the FWD pinch roller. The FR switch also moves upward and its reaction causes downward force on the FR lever. The spring attached to the FR lever applies upward force to the play idler gear from above to engage it with the neighbor gear and FWD reel gear.

The tape is driven in the FWD direction by a running motor and taken up by the REV reel gear via the torque limiter gear.

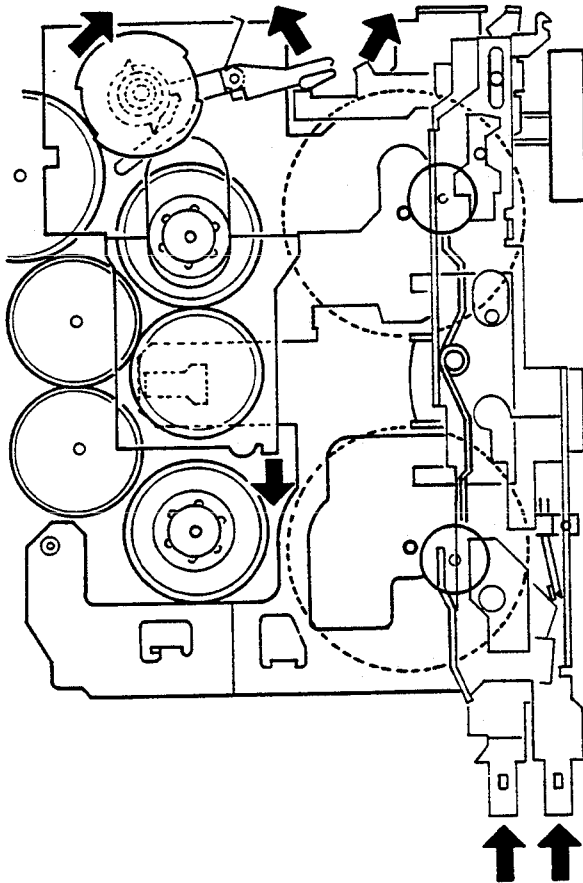
(2) Direction change operation

Fig. 14

The direction is changed by pressing FF and REW levers simultaneously. The DC arm turns along a cam groove of FF and REW levers to turn the FR lock arm. As the FR lever applies force from above downward, the FR cam gear turns and the notch meshes with the sensing gear.

As a result, the FR lever moves downward.

When FF and REW levers are kept pressed, the lock arm contacts the outside of the FR cam gear to prevent changeover between FWD and REV. Pressing FF and REW levers also cause the mute switch to be turned ON. In other words, muting is valid while FF and REW levers are pressed. (Fig.14)

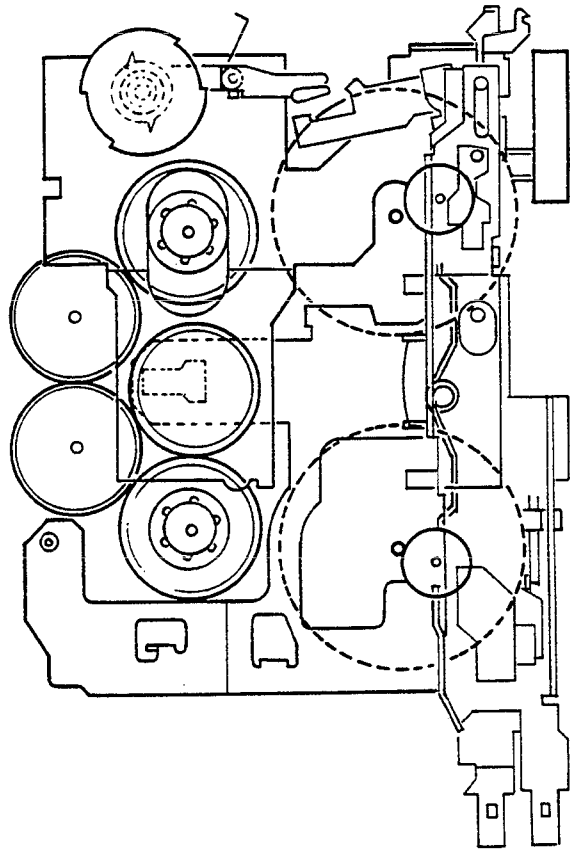
(3) REV play operation

Fig. 15

Moving the NR lever up and down causes changeover among the pinch roller, FR switch, and play idler gear. With FF and REW levers having been returned, the FR lock arm returns to the normal lock position and locks the gear when the FR gear completes an one-half turn. The mute arm also returns to turn OFF the mute switch. The reverse play state is thus obtained. (The same applies to changeover from REV to FWD.)

● FF/REW Operation

(1) FWD play operation

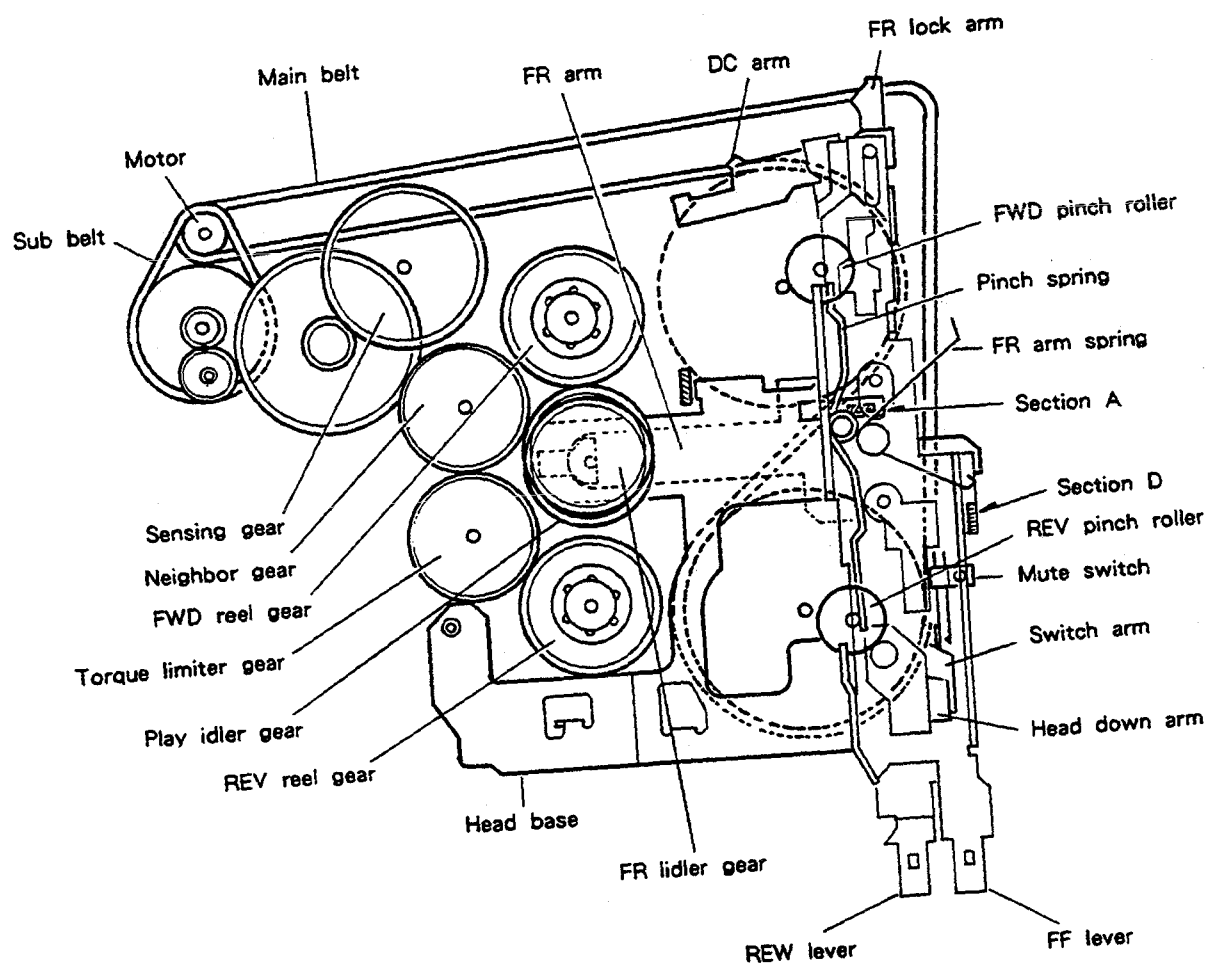


Fig. 16

In the FWD (REV) play state, the head base is fixed by a chassis stopper. The pinch spring presses the pinch roller into contact with a capstan to drive forward the tape. The REV reel gear takes up the tape via the torque limiter gear. In this case, the FR idler gear on the FR arm is centered by Section A of the head base and thus not rotating.

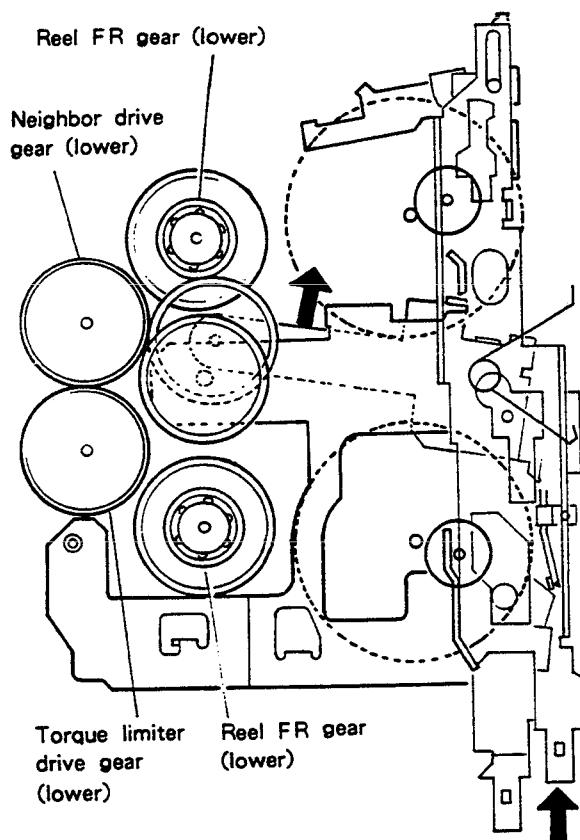
(2) FF Operation

Fig. 17

FF operation is obtained by pressing and locking the FF lever. As the FF lever is pressed, the switch arm turns to turn ON the mute switch. The head base is moved backward along the FF lever cam groove.

As the head base moves backward to release the pinch roller from the capstan, the play idler gear is simultaneously disengaged from the reel gear. As the head base moves backward, the FR arm centered by Section A is put into rotation by the FR arm spring to engage with the FWD side FR gear.

The FF lever is locked by the FR lock arm and performs the FF operation. (Fig.17)

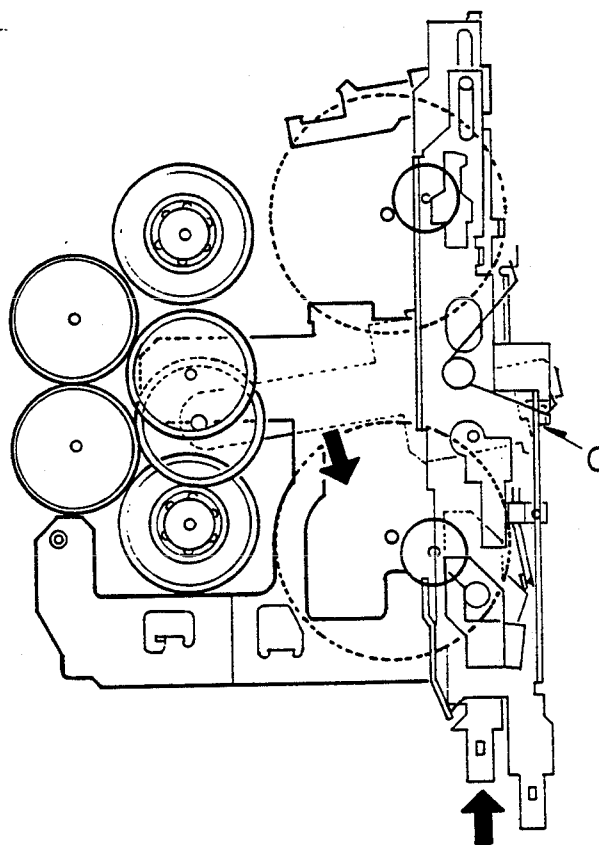
(3) REW operation

Fig. 18

Similar to the case of FF operation, pressing the REW lever causes the mute switch to be turned ON.

Simultaneously with release of the pinch roller from the capstan, the play idler gear is disengaged from the reel gear.

Section D of the REW lever presses a movable side of the FR arm spring, thereby engaging the FR gear to the FR gear on the REV side.

The REW lever is locked by the lock arm, performing the REW operation. This operation is cancelled when Section C is turned by the lever return spring. (Fig.18)

● Sensing Operation

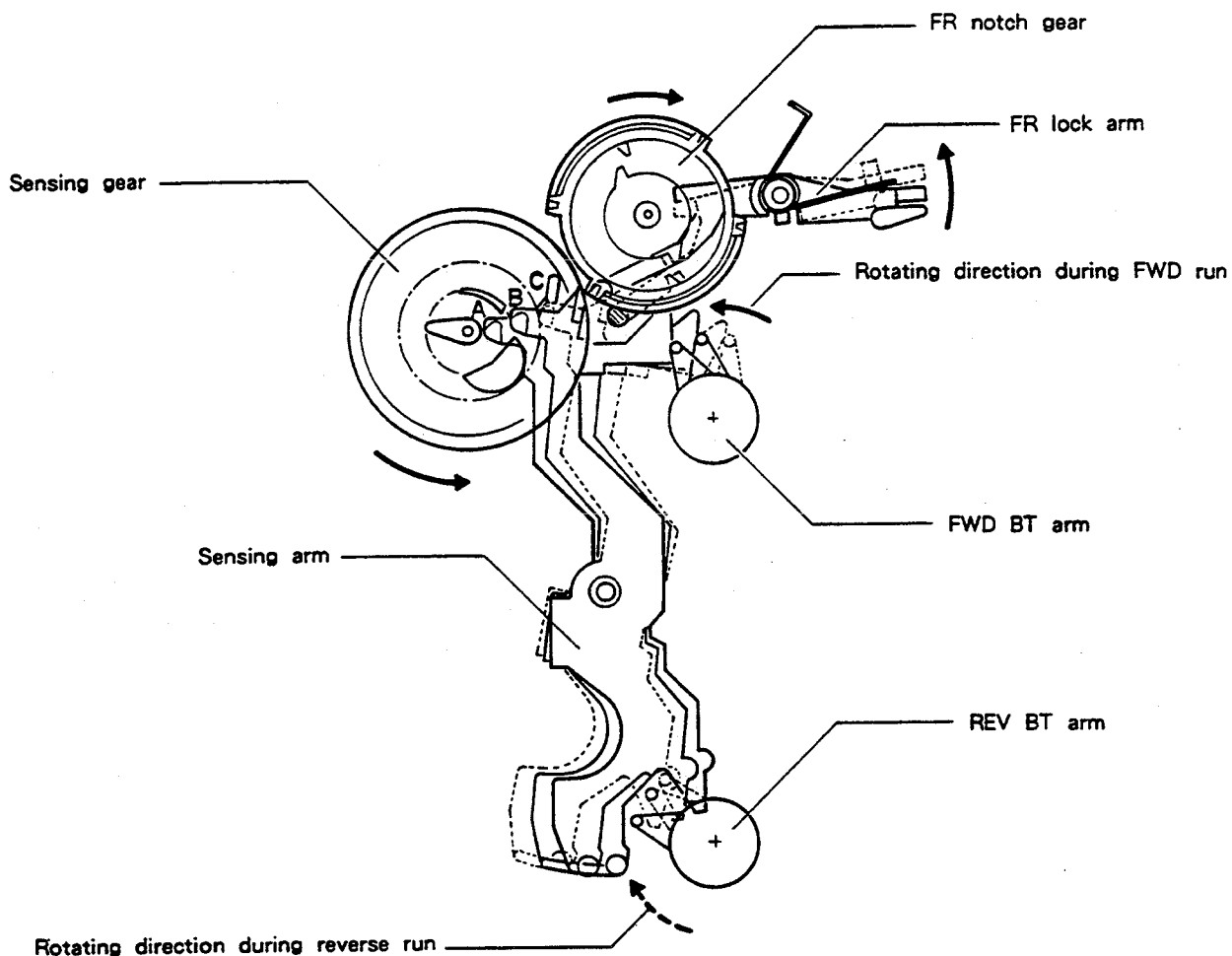


Fig. 19

1. During tape run: The sensing arm keeps oscillation between A and B under a force of the FWD BT arm (or REV BT arm).
2. At end of tape: The force of the BT arm is lost. The sensing arm stops at Position B, then pushed out to Position C by a crescent cam of the sensing gear.

3. Change of run direction:

The FR lock arm turns counter-clockwise along with movement of the sensing arm. The FR notch gear is unlocked and begins to turn.

● ATSC Operation

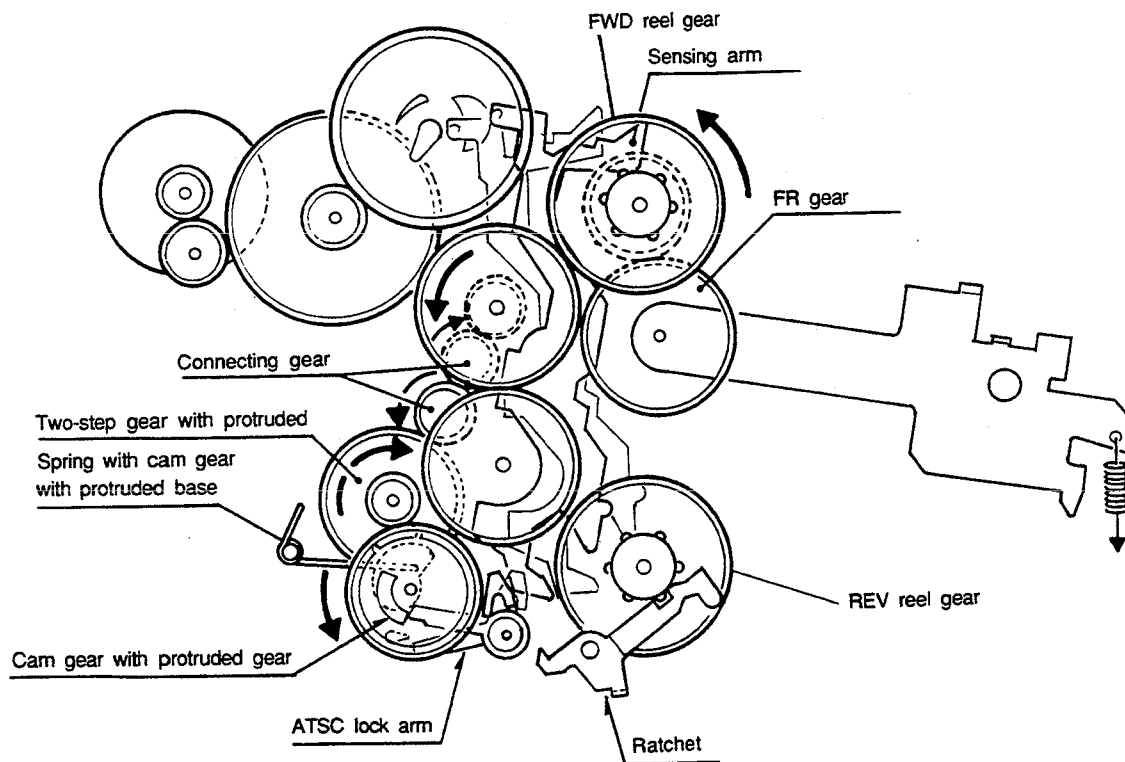
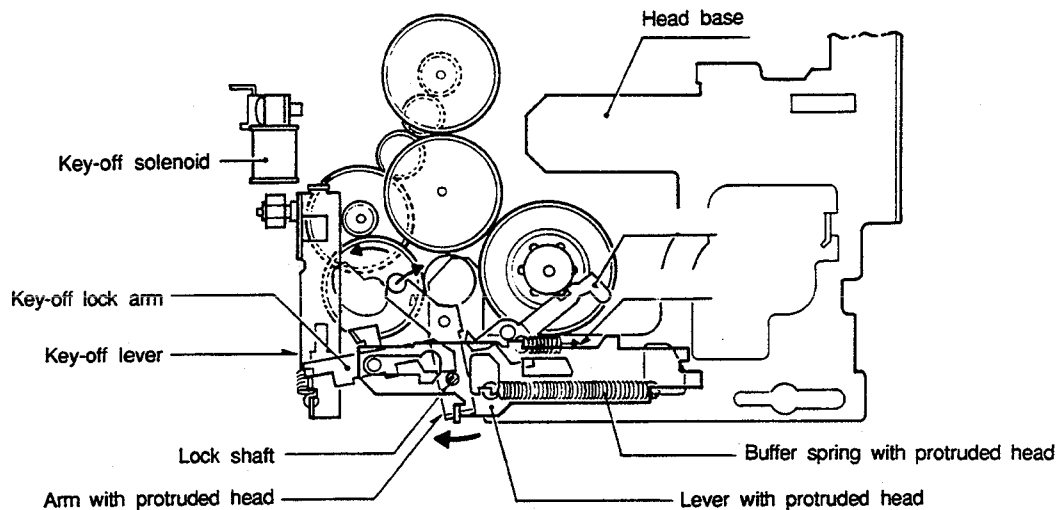


Fig. 18

1. At the position for releasing the head table, the FR gear is meshed with the FWD reel gear. Because the ratchet in the REV reel gear stops rotating, the tape must be wound up until no slack exist.
2. Because the rotation stops when no slack exists in the tape, sensing is performed. The sensing arm presses the ATSC lock arm, and the lock of the cam gear with protruded head gets out of position. Then, the cam gear is made to rotate.

● Key-off Operation

Release Condition



Play Condition

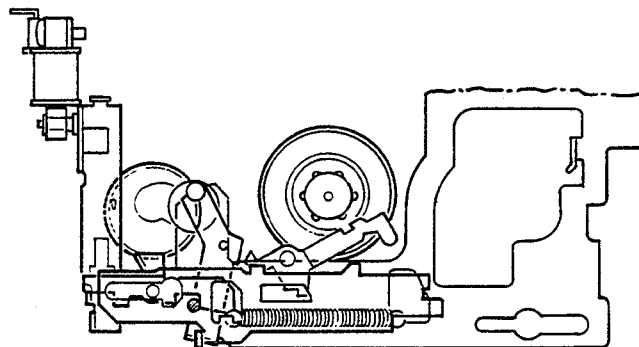


Fig. 19

1. Thrusting head: The arm with protruded head is rotated by the rotation of the cam gear with protruded head, and the lever with protruded head is pushed out. Because the lever with the protruded head and head base are connected by the buffer spring with protruded head, the head base moves forward.

2. Lock for head base:

When the lever with protruded head moves forward, the lock shaft caulked by the lever with protruded head shifts. Thus, the key-off lock arm can rotate, and the key-off lever reaches the key-off solenoid

by force of a spring, and becomes attached. (Although escape power works on the key-off lock arm by force of the head return spring, the solenoid maintains it.)

3. Key-off:

The key-off lock arm is rotated by the power of the head return spring when the key-off solenoid is switched off, and the lever with protruded head and head base move back together.

● EJECT Operation

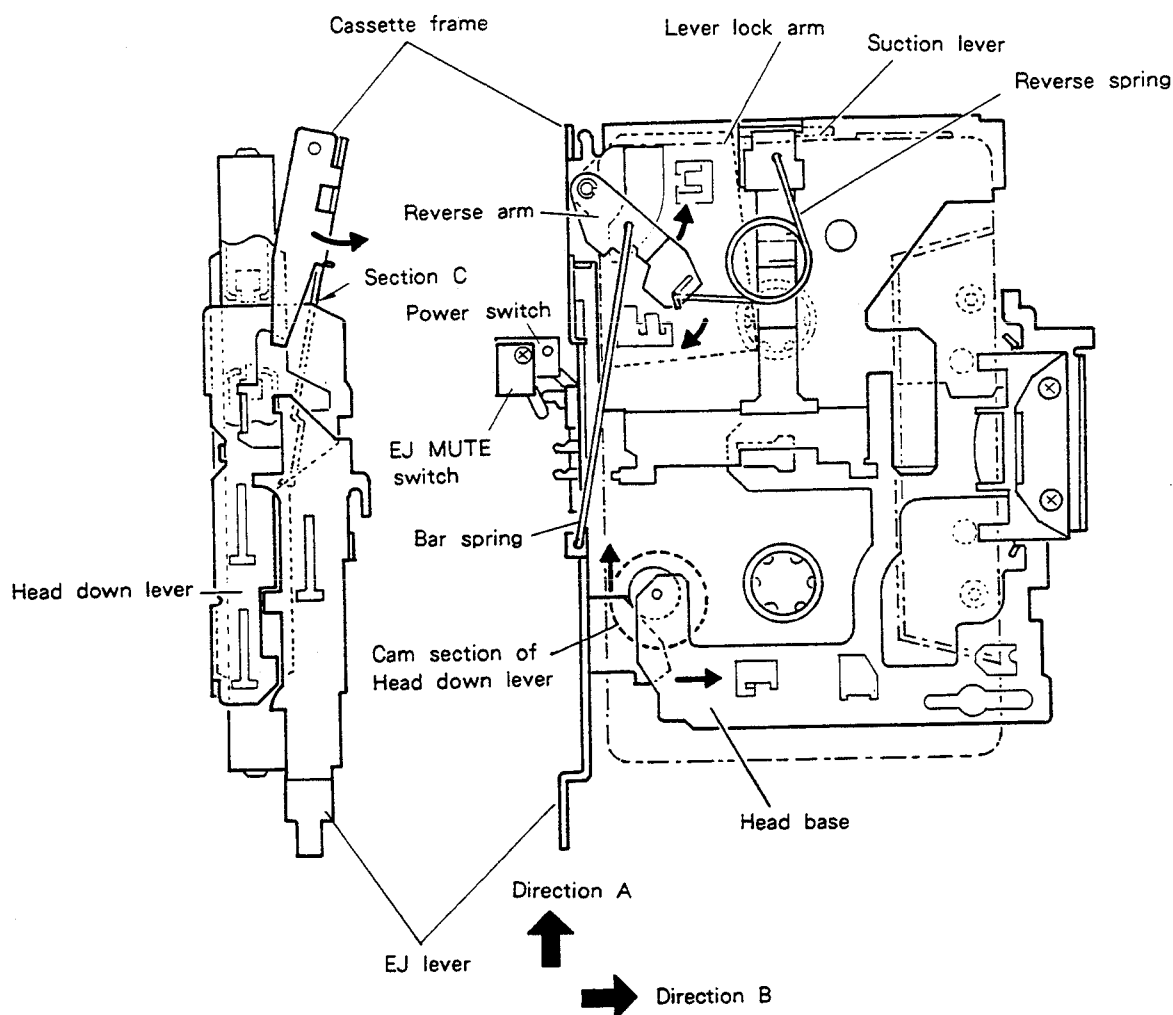


Fig. 20

1. Push the EJ lever in Direction A by hand (EJ MUTE SW ON) At the same time, the head down lever slides in Direction A.
2. The cam section of the head down lever returns the head base in Direction B (head base down operation).
3. Section C of the cassette frame is pushed up by the stroke of the head down lever (push-up operation).
4. The reverse arm is driven in a direction of arrow mark via bar spring by the EJ lever stroke.
5. The reverse spring passes through the reverse position to eject the cassette tape (eject operation).
6. With the EJ lever over-stroking, the lever lock arm can be rotated and locks the head down lever.
7. When released, the EJ lever returns and is stopped by the head down lever.

ADDITIONAL

 **PIONEER**
The Art of Entertainment

α 323

Service Manual

ORDER NO.
CRT1428

CASSETTE MECHANISM ASSEMBLY

CX-197

NOTE

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.
- CX197 (CRT1328) does not have a Key-off function, but the key-off function is shown in this service manual of the CX-197 (CRT1428).

Model	Service Manual	Cassette Mechanism Assembly
KEH-M7400RDS/EW	CRT1429	EXK1735

Model	Service Manual	Cassette Mechanism Assembly

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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1. DISASSEMBLY

Note: Always use new washer and E washer at the time of reassembling.

● How to Remove the Belt and Motor

1. Remove screw A fixing the FR lever. (Fig.1)
2. Remove three screws B fixing the sub-chassis unit. Move the unit first in Direction A, then in B direction, and lift it upward for removal. (Fig.2)
3. The belt can now be removed. (Fig.3)
4. Remove two screws C. The motor can be removed. (Fig.3)

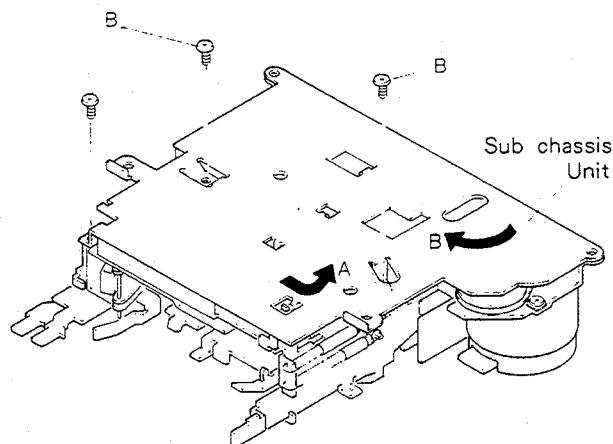


Fig. 2

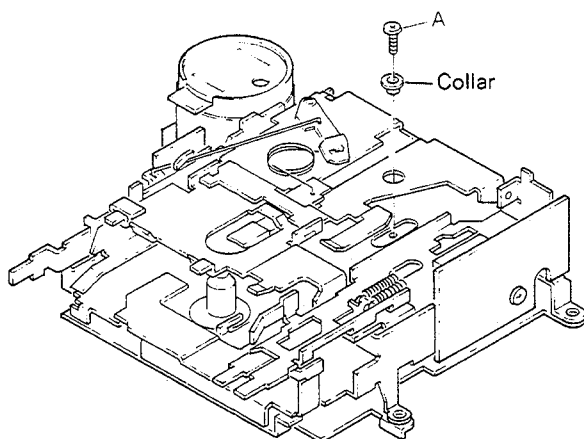


Fig. 1

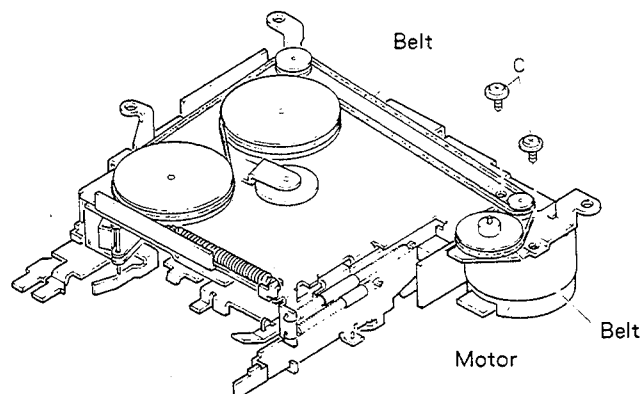


Fig. 3

● How to Remove the Pinch Roller Unit and Head

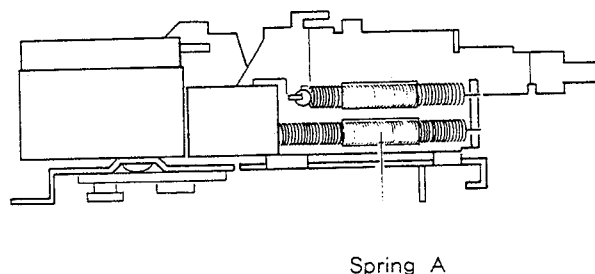


Fig. 4

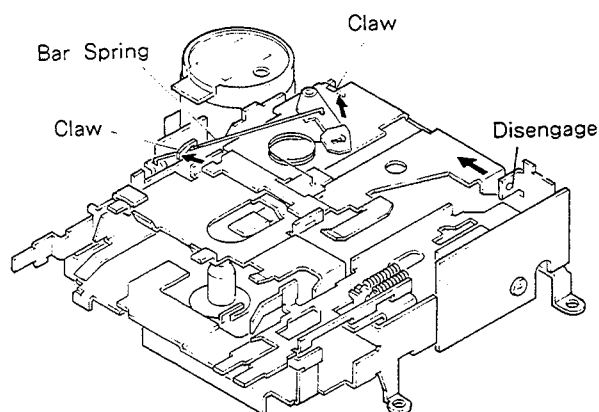


Fig. 5

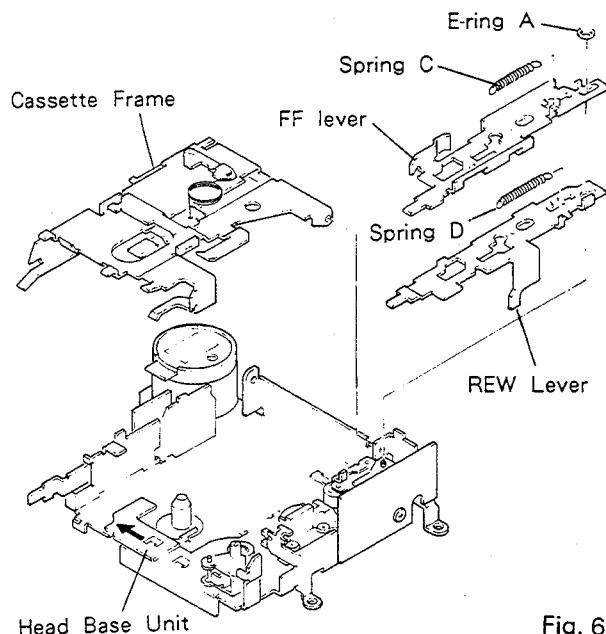


Fig. 6

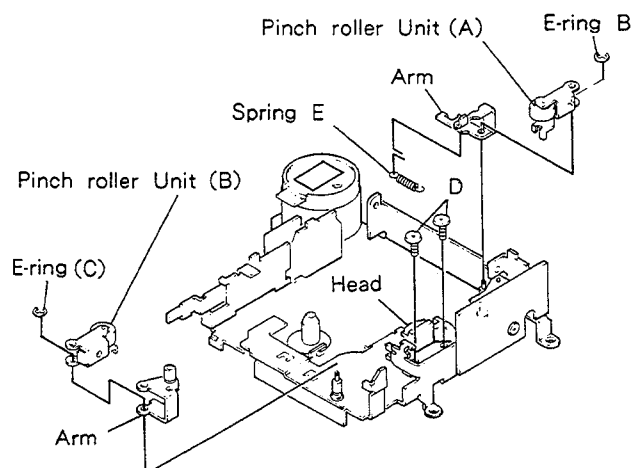


Fig. 7

1. Remove spring A. (Fig.4)
2. Extend claws (2 points). (Fig.5)
3. Remove bar Spring. (Fig.5)
4. Disengage projection by moving in a direction of arrow mark. (Fig.5)
5. The cassette frame is removed. (Fig.6)
6. Remove springs C and D. (Fig.6)
7. Remove E-ring A. (Fig.6)
8. Remove FF/REW levers. (Fig.6)
9. Move head base unit forward. (Fig.6)
10. Remove spring E. (Fig.7)
11. Remove E-ring B. The pinch roller unit (A) can be removed. (Fig.7)
12. Remove E-ring C. The pinch roller unit (B) can be removed. (Fig.7)
13. Remove two screws D. The head can be removed. (Fig.7)

2. ADJUSTMENT

2.1 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation: $3,000 \begin{smallmatrix} +90 \\ -30 \end{smallmatrix} \text{Hz}$ $(4.76\text{cm/s} \begin{smallmatrix} +3 \\ -1 \end{smallmatrix} \%)$</p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>	<p>■ Wow and flutter: Less than 0.2% (WRMS)</p> <p>Using an NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>
<p>■ Fast forward and rewinding time: 100 – 120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque: 35 – 65g • cm</p> <p>Using a cassette type torque meter (100 g•cm), measure the minimum value while in the play mode. Measuring time shall be 2.5 – 6 seconds.</p>	<p>■ F.F. torque: 70 – 120g • cm</p> <p>Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque: 70 – 120g • cm</p> <p>Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque: 2 – 6g • cm</p> <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force: Less than 0.7 kg</p> <p>Push the center of the cassette and measure the force with a tension meter (3 kg).</p>

2.2 AZIMUTH ADJUSTMENT

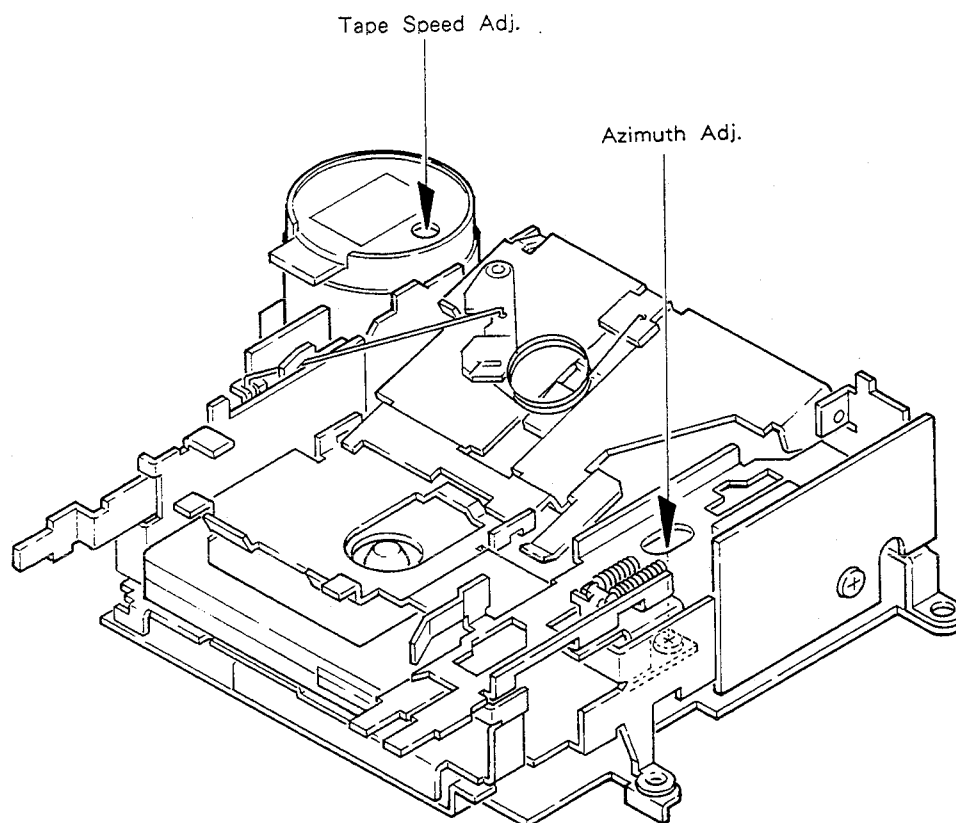


Fig. 8

● To Adjust (EXK1750)

1. Play "A" side of NCT-110 (10kHz, - 10dB). Adjust the screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

2.3 TAPE SPEED ADJUSTMENT

1. Reproduce NCT-111 (3kHz, - 10dB). Adjust the semifixed resistor so that frequency counter shows 3010Hz (+80Hz, - 40Hz).

3. MECHANISM DESCRIPTION

● Loading operation

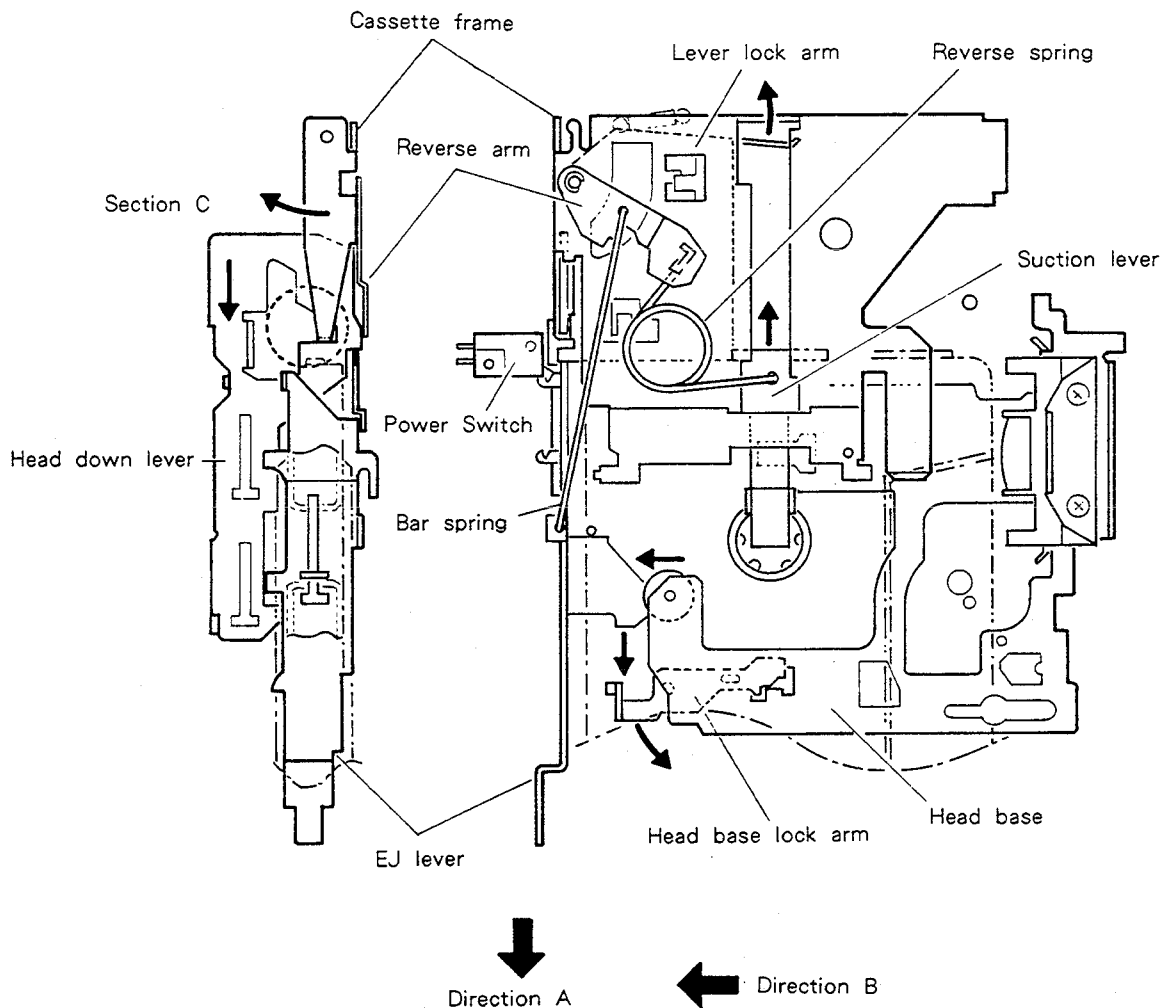


Fig. 9

1. A cassette tape, when inserted, pushes a suction lever.
The reverse spring rotates to move past the reverse point. Then, the cassette is drawn by a force of a reverse spring (suction operation).
2. After suction, the lever lock arm is pressed to be unlocked.
3. The head down lever is unlocked and the lever moves in Direction A.
4. While moving, the EJ lever turns ON the power switch.
5. The cassette frame engaged to the section C of the head down lever turns. (Cassette drop operation)
6. At the stroke end, the head down lever turns the head base lock arm.
7. A Stopper of the head base lock arm is released, and the head base moves forward (Direction B).

● MS Operation

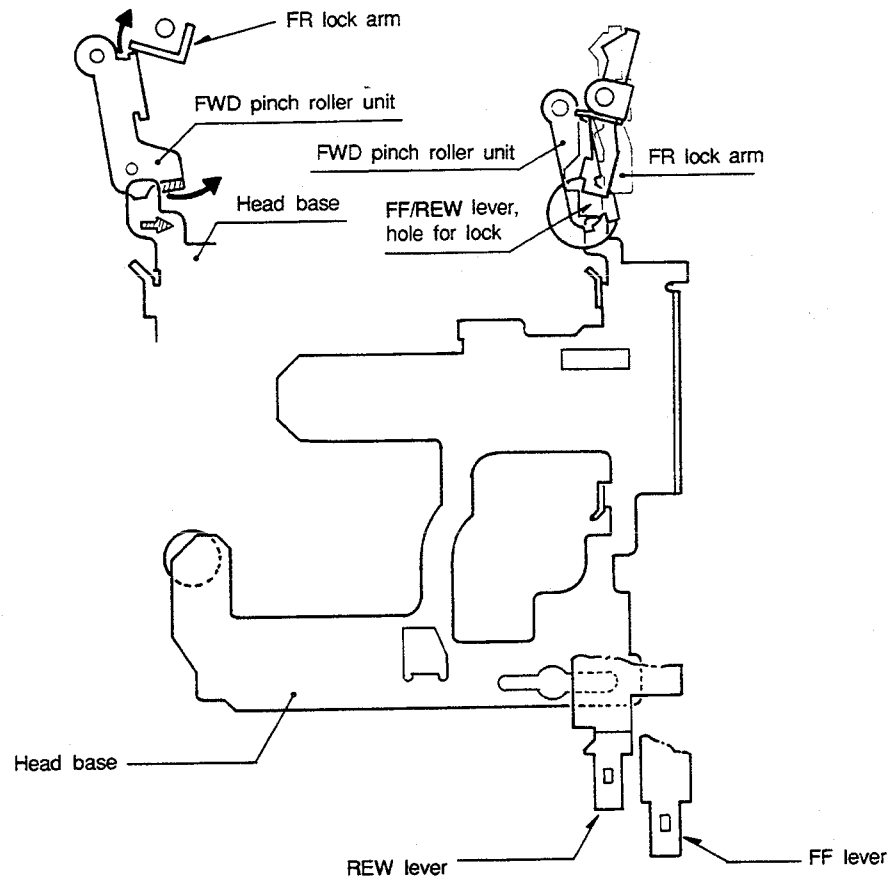


Fig. 10

The head base is moved back by switching the key-off solenoid off from the REW or FF condition, and is lowered (rotated) FWD pinch roller unit. The FWD pinch roller unit presses the bending part of FR lock arm to make it rotate in the direction that releases the lock. The lock of the FF/REW lever is consequently released. Subsequently, the head comes out from the ATSC to enable PLAY condition.

● Direction Changeover Operation

(1) FWD play operation

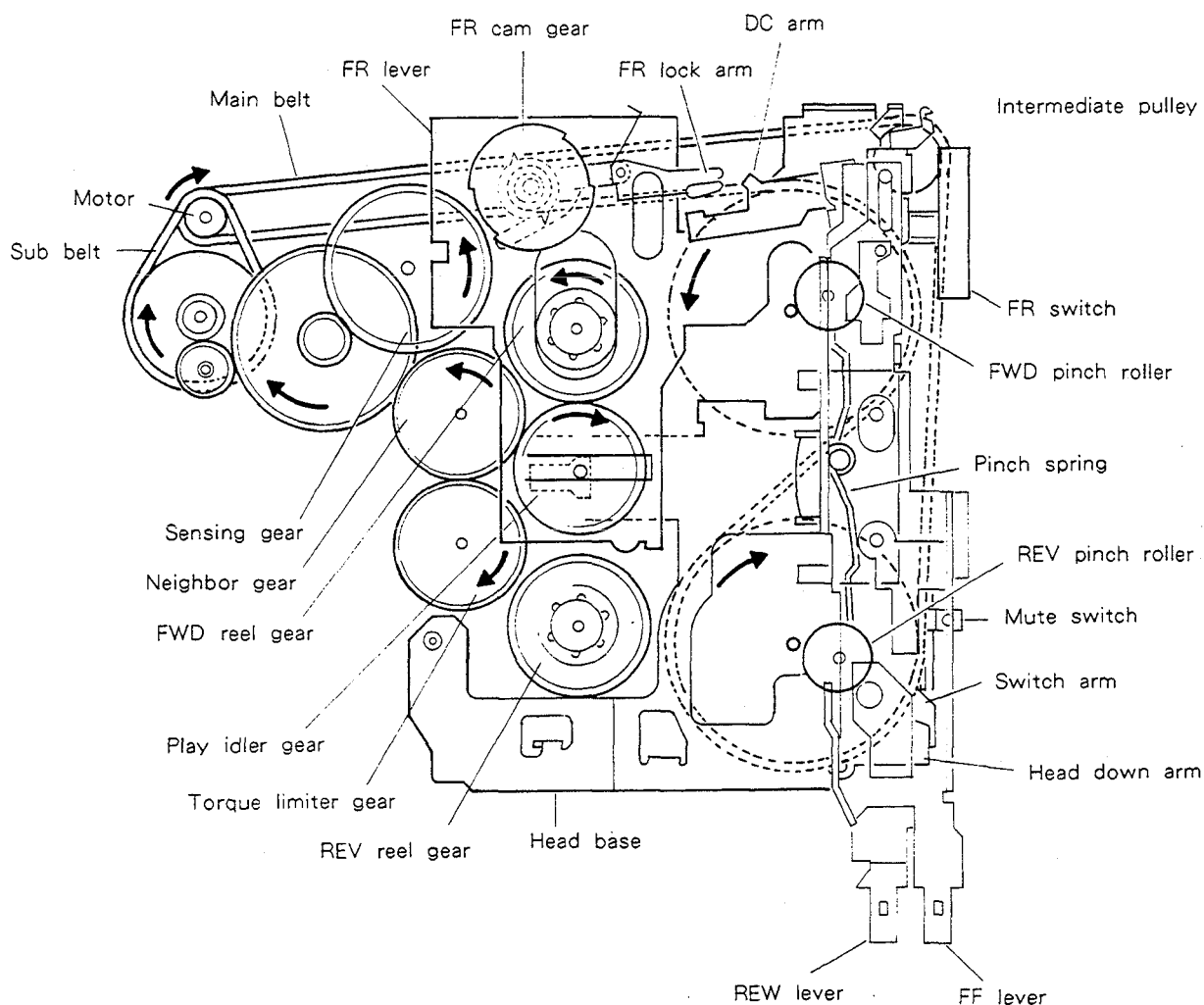


Fig. 11

When the FR lever is in the top position, the pinch spring is in the upper position to press the FWD pinch roller. The FR switch also moves upward and its reaction causes downward force on the FR lever. The spring attached to the FR lever applies upward force to the play idler gear from above to engage it with the neighbor gear and FWD reel gear.

The tape is driven in the FWD direction by a running motor and taken up by the REV reel gear via the torque limiter gear.

(2) Direction change operation

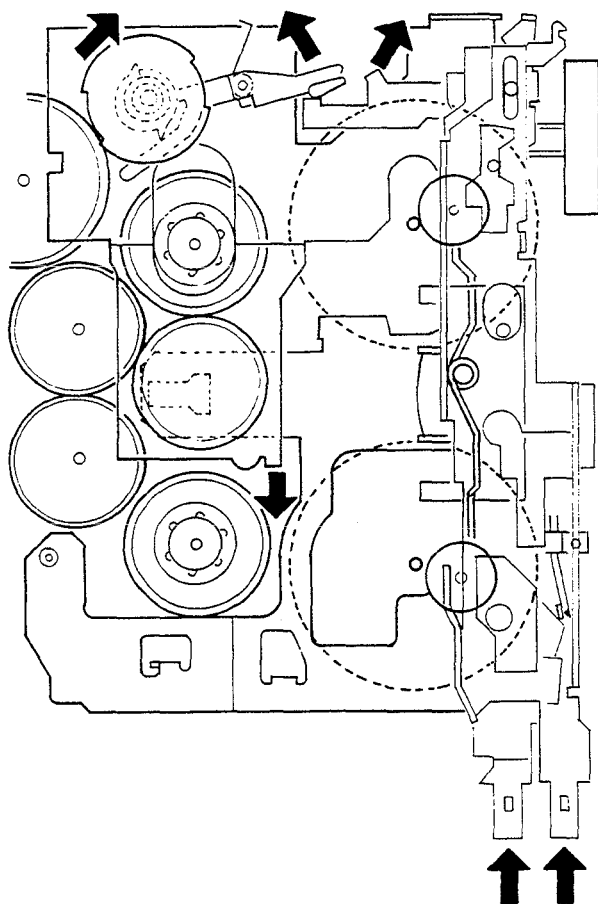


Fig. 12

The direction is changed by pressing FF and REW levers simultaneously. The DC arm turns along a cam groove of FF and REW levers to turn the FR lock arm. As the FR lever applies force from above downward, the FR cam gear turns and the notch meshes with the sensing gear. As a result, the FR lever moves downward. When FF and REW levers are kept pressed, the lock arm contacts the outside of the FR cam gear to prevent changeover between FWD and REV. Pressing FF and REW levers also cause the mute switch to be turned ON. In other words, muting is valid while FF and REW levers are pressed. (Fig.12)

(3) REV play operation

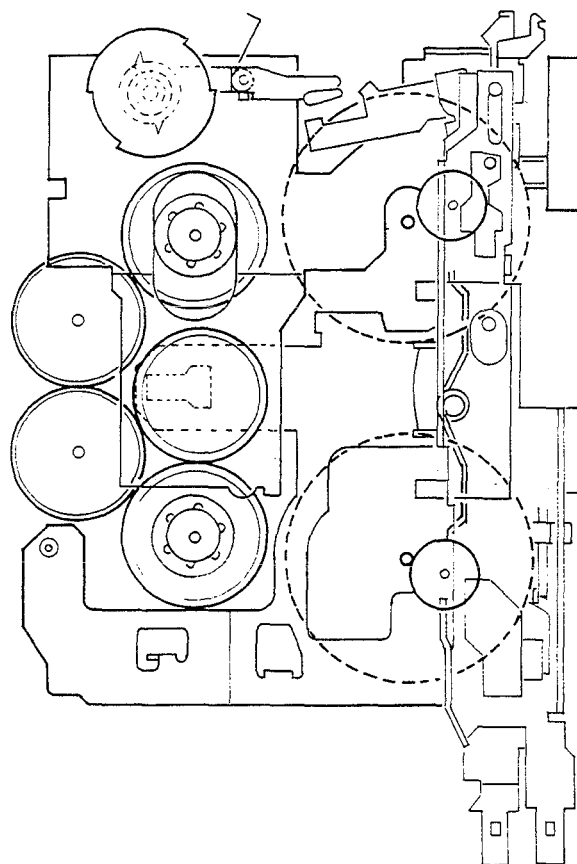


Fig. 13

Moving the NR lever up and down causes changeover among the pinch roller, FR switch, and play idler gear. With FF and REW levers having been returned, the FR lock arm returns to the normal lock position and locks the gear when the FR gear completes an one-half turn. The mute arm also returns to turn OFF the mute switch. The reverse play state is thus obtained. (The same applies to changeover from REV to FWD.)

● FF/REW Operation

(1) FWD play operation

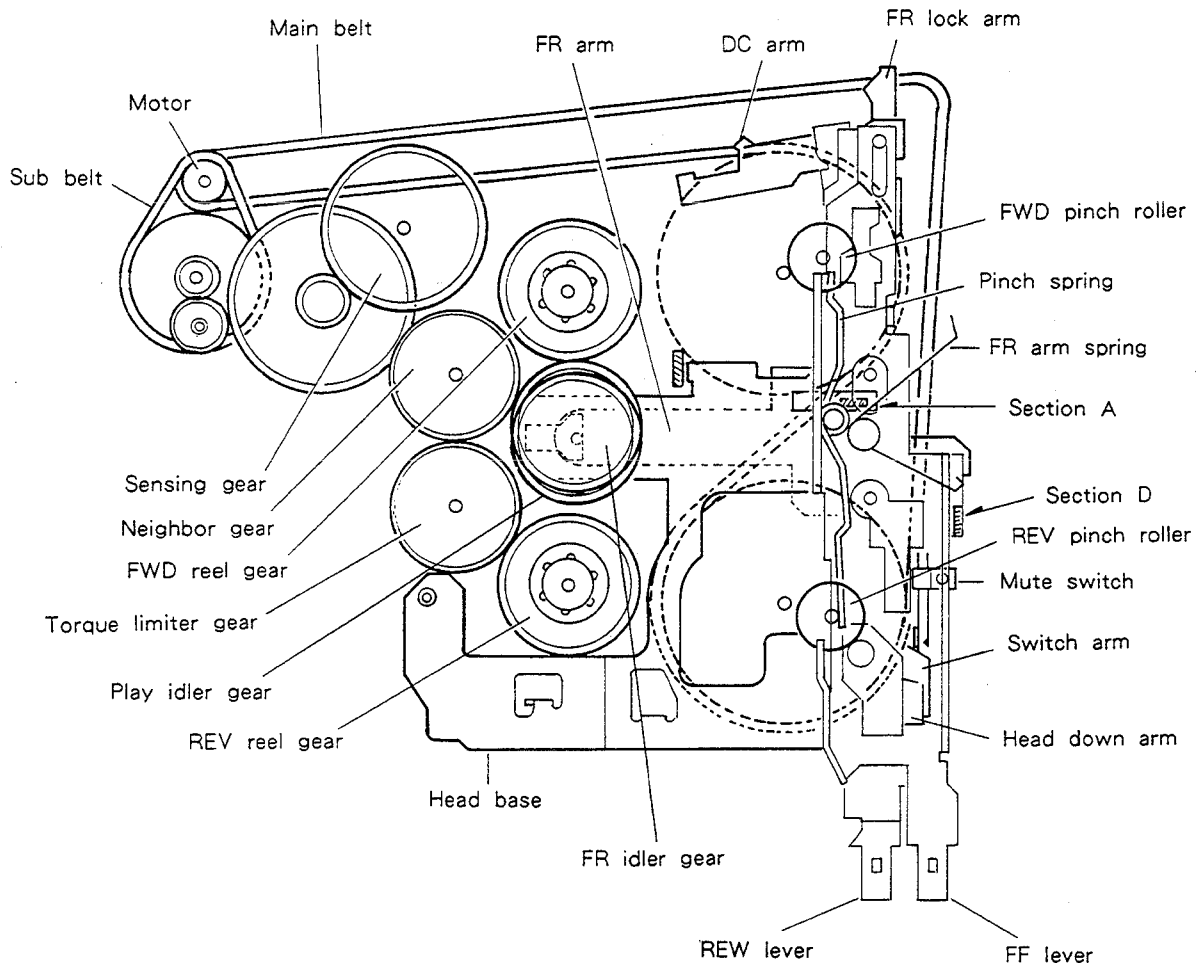


Fig. 14

In the FWD (REV) play state, the head base is fixed by a chassis stopper. The pinch spring presses the pinch roller into contact with a capstan to drive forward the tape. The REV reel gear takes up the tape via the torque limiter gear. In this case, the FR idler gear on the FR arm is centered by Section A of the head base and thus not rotating.

(2) FF Operation

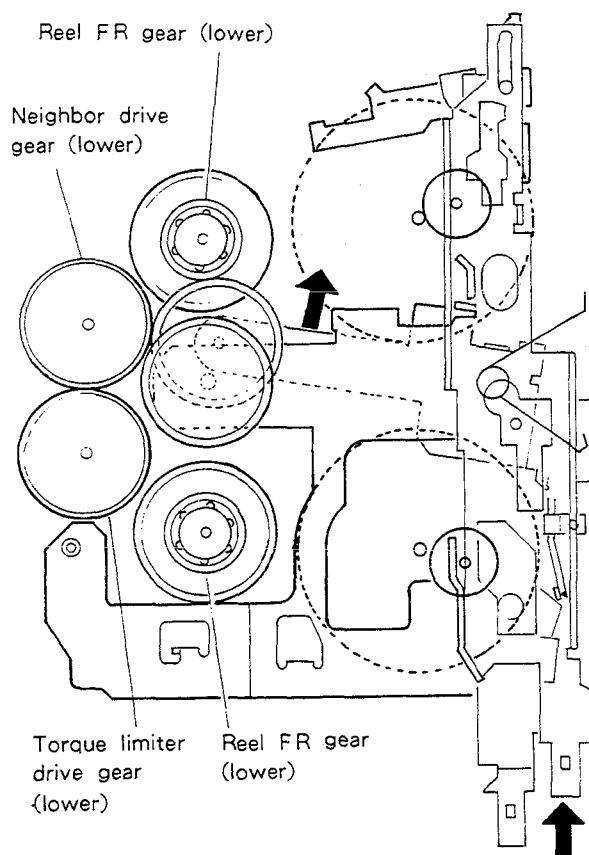


Fig. 15

FF operation is obtained by pressing and locking the FF lever. As the FF lever is pressed, the switch arm turns to turn ON the mute switch. The head base is moved backward along the FF lever cam groove.

As the head base moves backward to release the pinch roller from the capstan, the play idler gear is simultaneously disengaged from the reel gear. As the head base moves backward, the FR arm centered by Section A is put into rotation by the FR arm spring to engage with the FWD side FR gear.

The FF lever is locked by the FR lock arm and performs the FF operation. (Fig.15)

(3) REW operation

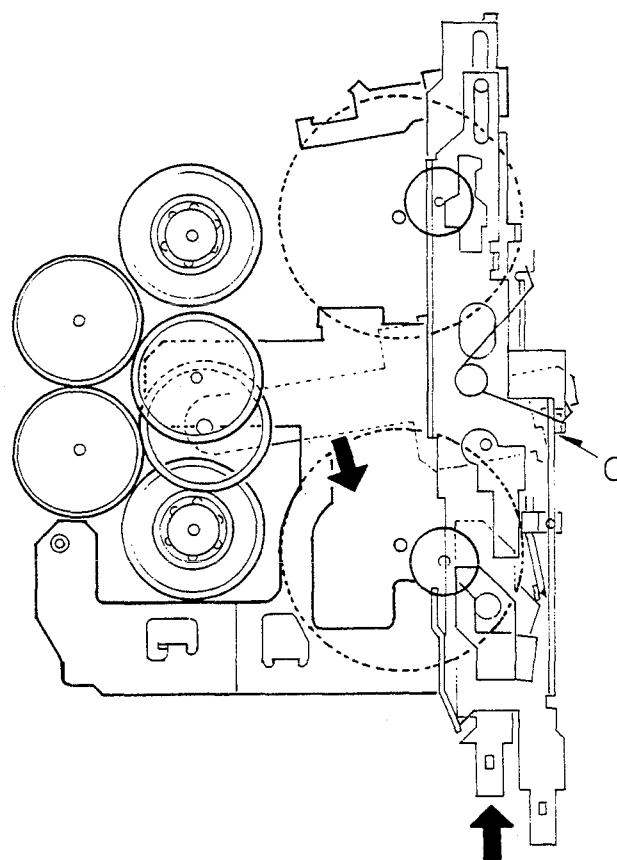


Fig. 16

Similar to the case of FF operation, pressing the REW lever causes the mute switch to be turned ON.

Simultaneously with release of the pinch roller from the capstan, the play idler gear is disengaged from the reel gear.

Section D of the REW lever presses a movable side of the FR arm spring, thereby engaging the FR gear to the FR gear on the REV side.

The REW lever is locked by the lock arm, performing the REW operation. This operation is cancelled when Section C is turned by the lever return spring. (Fig.16)

● Sensing Operation

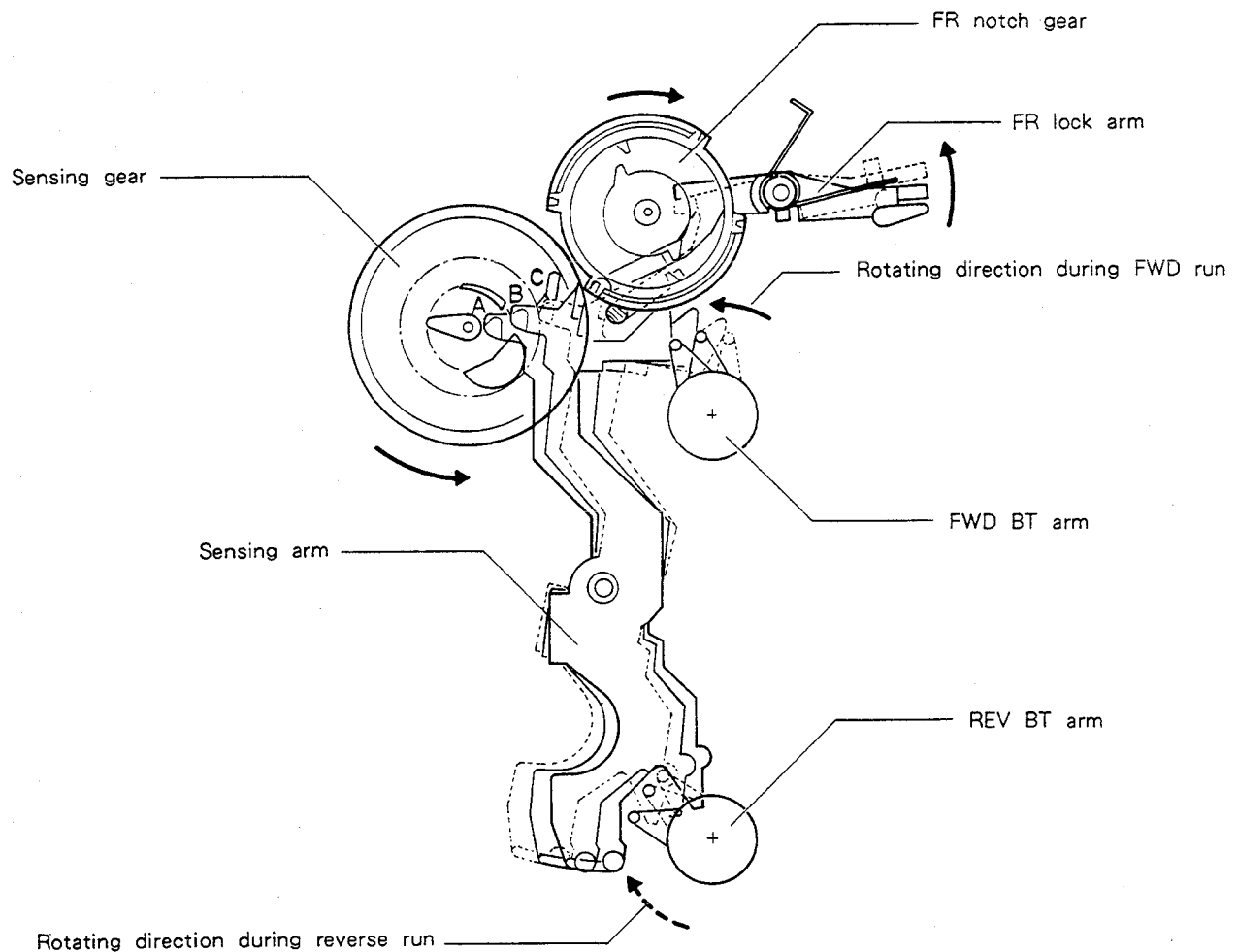


Fig. 17

1. During tape run: The sensing arm keeps oscillation between A and B under a force of the FWD BT arm (or REV BT arm).
2. At end of tape: The force of the BT arm is lost. The sensing arm stops at Position B, then pushed out to Position C by a crescent cam of the sensing gear.

3. Change of run direction:

The FR lock arm turns counter-clockwise along with movement of the sensing arm. The FR notch gear is unlocked and begins to turn.